FIG.1

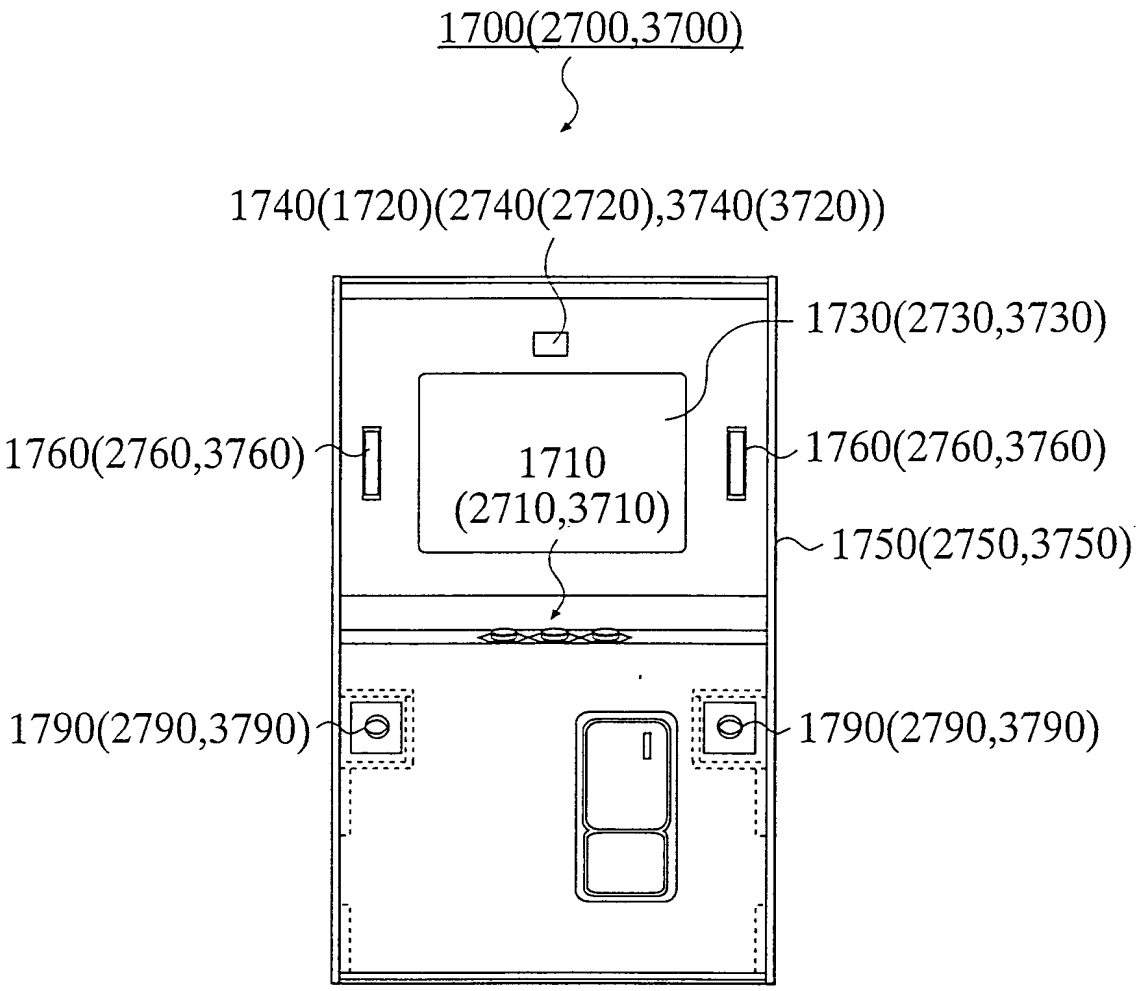
1700(2700,3700)
1740(1720)(2740(2720),3740(3720))
1730(2730,3730)
1760(2760,3760)
1710
(2710,3710)
1760(2760,3760)
1750(2750,3750)
1790(2790,3790)
1790(2790,3790)

FIG.2

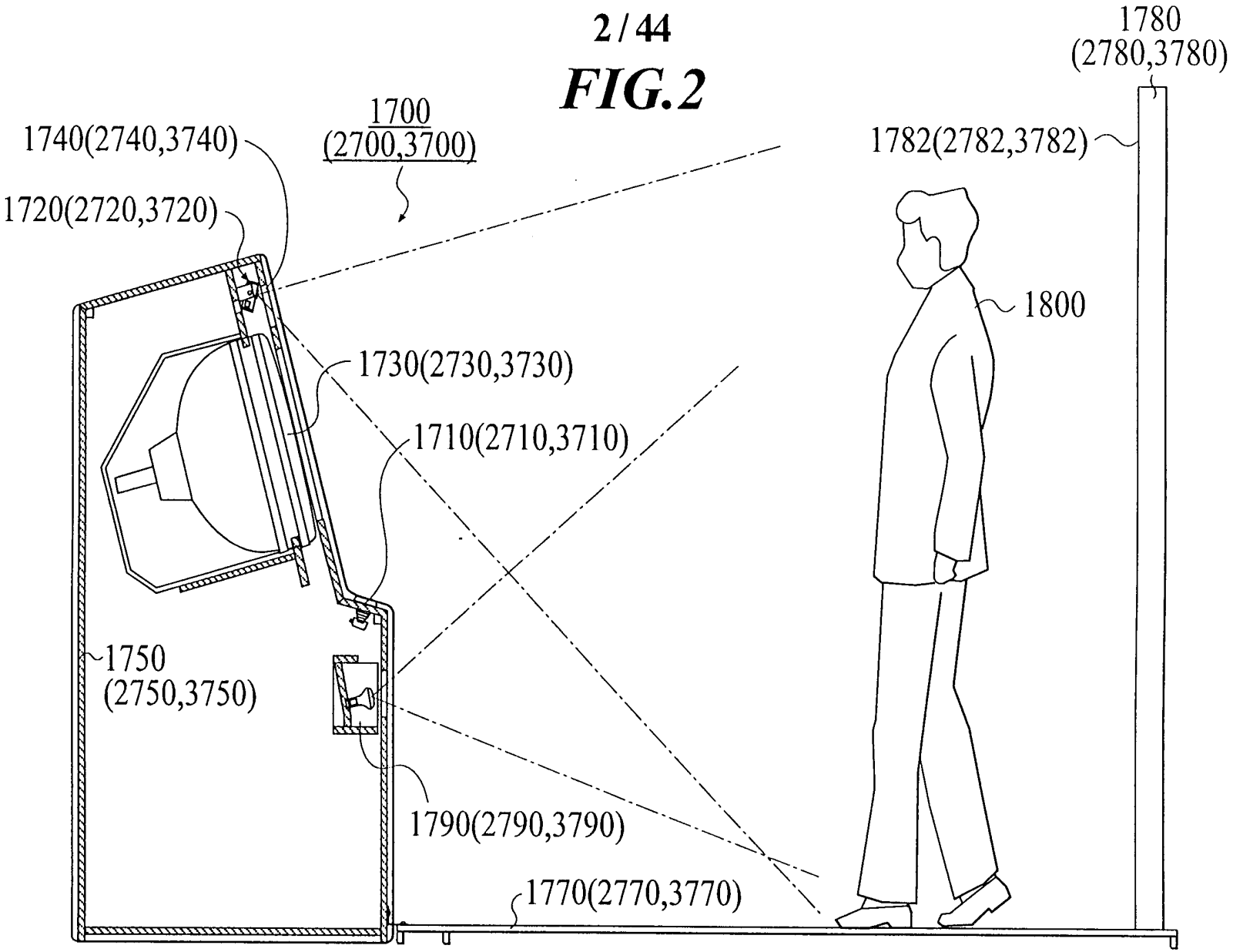
1780
(2780,3780)
1700
(2700,3700)
1740(2740,3740)
1720(2720,3720)
1782(2782,3782)
1800
1730(2730,3730)
1710(2710,3710)
1750
(2750,3750)
1790(2790,3790)
1770(2770,3770)

FIG.3

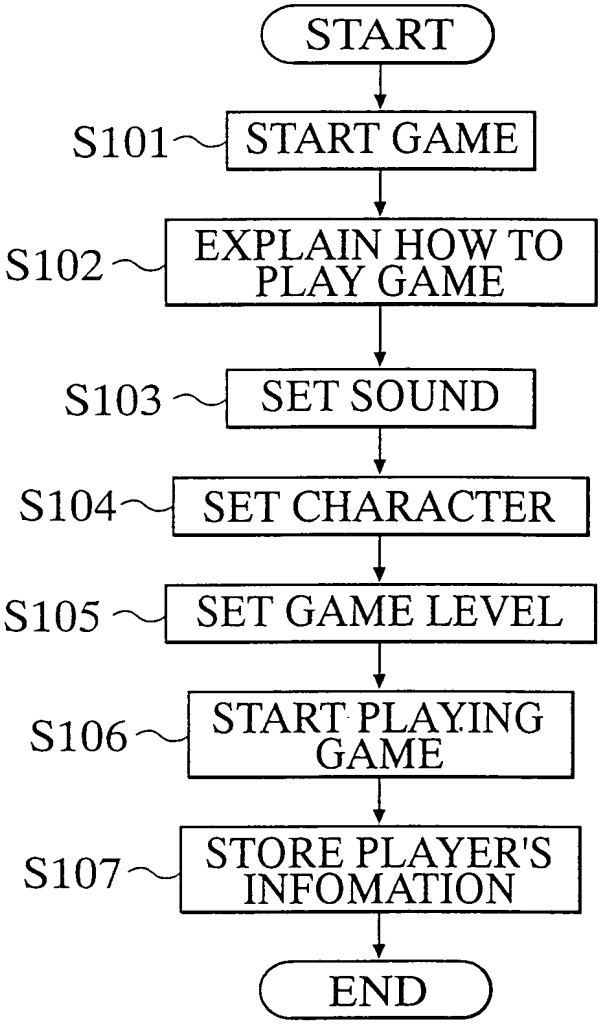
START
S101
START GAME
S102
EXPLAIN HOW TO PLAY GAME
S103
SET SOUND
S104
SET CHARACTER
S105
SET GAME LEVEL
S106
START PLAYING GAME
S107
STORE PLAYER'S INFOMATION
END

FIG.4

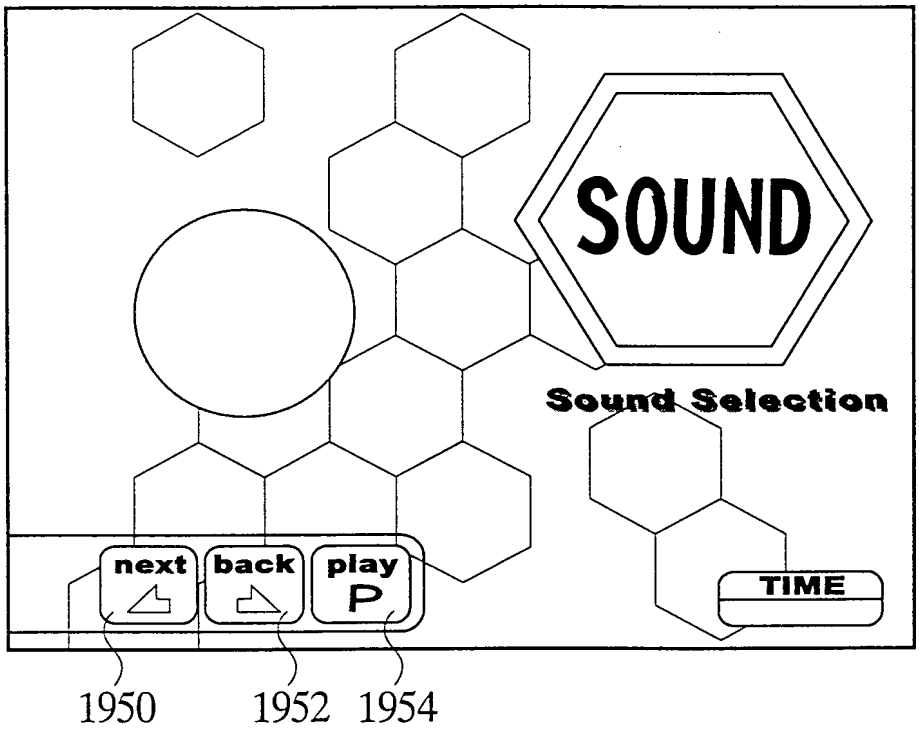
SOUND
Sound Selection
next
back
play
P
TIME
1950
1952
1954

FIG.5

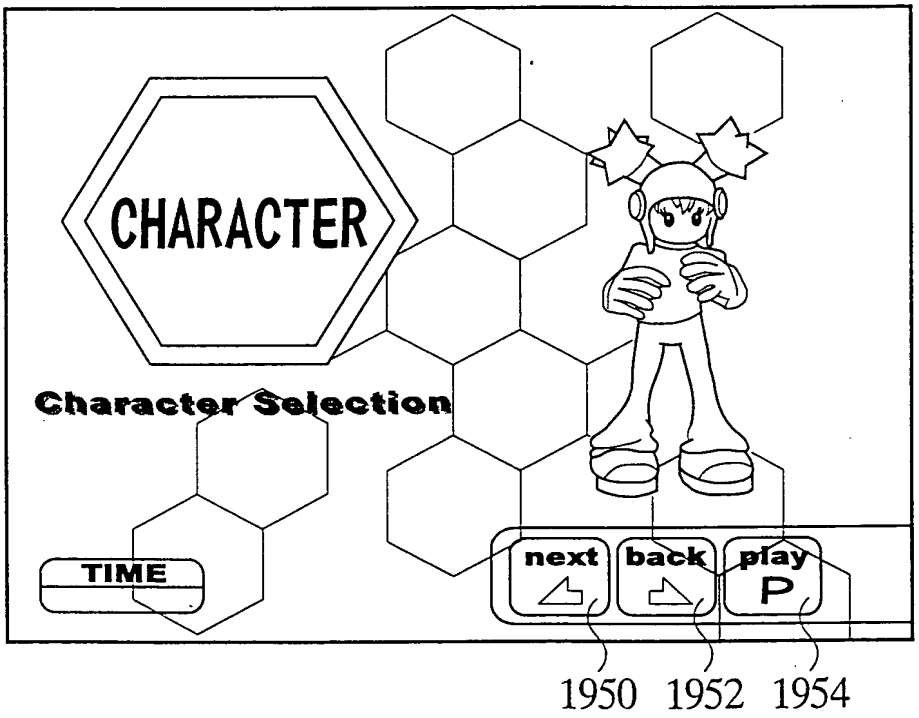
CHARACTER
Character Selection
TIME
next
back
play
P
1950
1952
1954

FIG.6

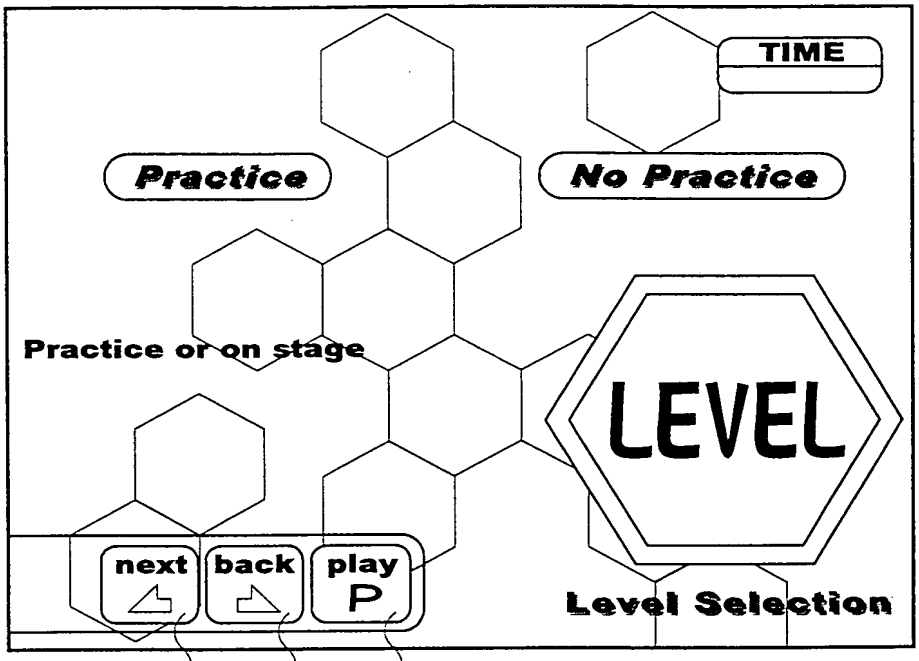
TIME
Practice
No Practice
Practice or on stage
LEVEL
next
back
play
P
Level Selection
1950
1952
1954

FIG.7

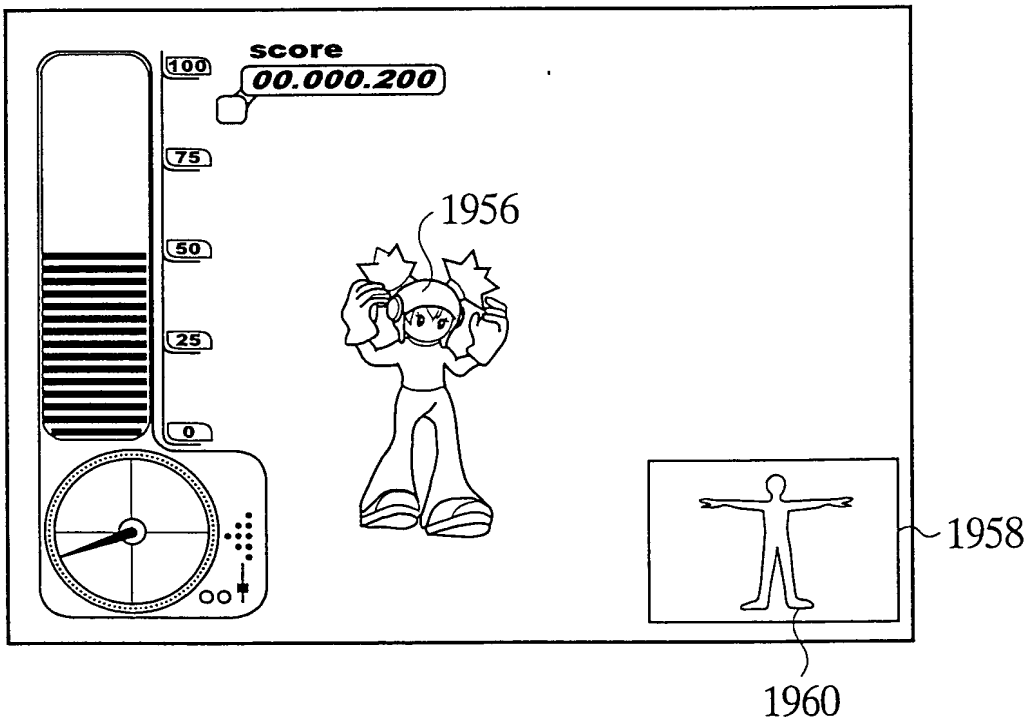
score
00.000.200
100
75
50
25
0
1956
1958
1960

FIG.8

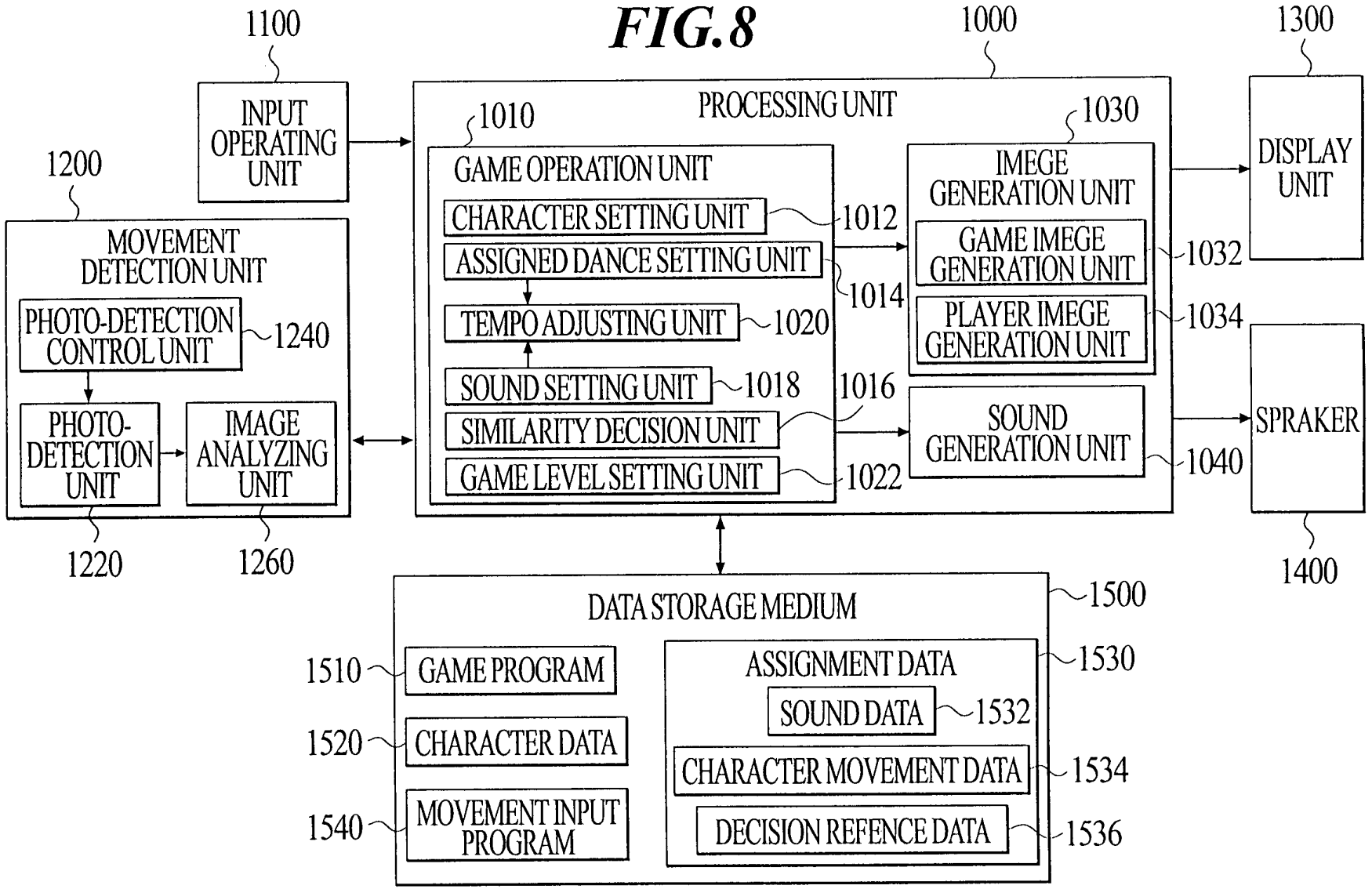
1100
INPUT OPERATING UNIT
1000
PROCESSING UNIT
1010
GAME OPERATION UNIT
CHARACTER SETTING UNIT
1012
ASSIGNED DANCE SETTING UNIT
1014
TEMPO ADJUSTING UNIT
1020
SOUND SETTING UNIT
1018
SIMILARITY DECISION UNIT
1016
GAME LEVEL SETTING UNIT
1022
1030
IMEGE GENERATION UNIT
GAME IMEGE GENERATION UNIT
1032
PLAYER IMEGE GENERATION UNIT
1034
SOUND GENERATION UNIT
1040
1300
DISPLAY UNIT
SPRAKER
1400
1200
MOVEMENT DETECTION UNIT
PHOTO-DETECTION CONTROL UNIT
1240
PHOTO-DETECTION UNIT
1220
IMAGE ANALYZING UNIT
1260
1500
DATA STORAGE MEDIUM
1510
GAME PROGRAM
1520
CHARACTER DATA
1540
MOVEMENT INPUT PROGRAM
ASSIGNMENT DATA
1530
SOUND DATA
1532
CHARACTER MOVEMENT DATA
1534
DECISION REFENCE DATA
1536

FIG.9

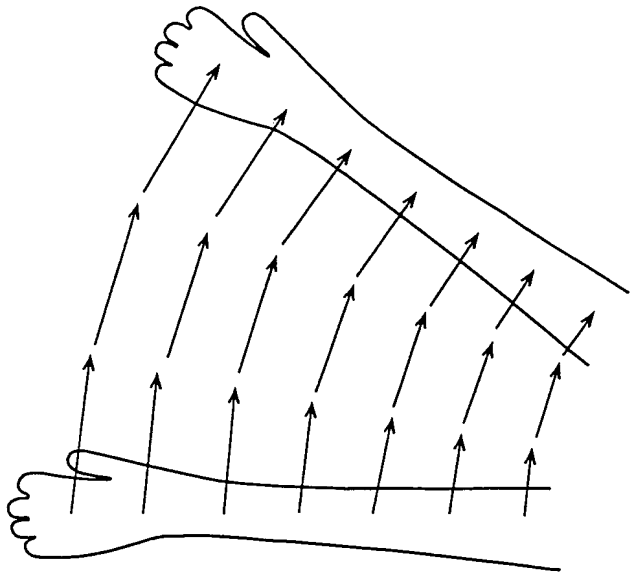

FIG.10

	DIRECTION	MAGNITUDE	SPEED
PLAYER'S MOVEMENT	$\alpha 1$	$\beta 1$	$\gamma 1$

FIG.11

1536

(DIRECTION α ,MAGNITUDE β , SPEED γ)

		DECISION REFERENCE DATA			
		t1	t2	t3	···
DANCE 1	PART a	(α 11, β 11, γ 11)	(α 12, β 12, γ 12)	(α 13, β 13, γ 13)	···
	PART b	(α 21, β 21, γ 21)	(α 22, β 22, γ 22)	(α 23, β 23, γ 23)	···
	⋮	⋮	⋮	⋮	···
DANCE 2	PART a	(α 11', β 11', γ 11')	(α 12', β 12', γ 12')	(α 13', β 13', γ 13')	···
	PART b	(α 21', β 21', γ 21')	(α 22', β 22', γ 22')	(α 23', β 23', γ 23')	···
	⋮	⋮	⋮	⋮	···

FIG.12

1534

(COORDINATES:X,Y,Z)

DANCE 1		POSITION DATA			
		FRAME 1	FRAME 2	FRAME 3	···
A	PART a	(Xa1,Ya1,Za1)	(Xa2,Ya2,Za2)	(Xa3,Ya3,Za3)	···
	PART b	(Xb1,Yb1,Zb1)	(Xb2,Yb2,Zb2)	(Xb3,Yb3,Zb3)	···
	PART c	(Xc1,Yc1,Zc1)	(Xc2,Yc2,Zc2)	(Xc3,Yc3,Zc3)	···
	⋮	⋮	⋮	⋮	···
B	PART a	(Xa1',Ya1',Za1')	(Xa2',Ya2',Za2')	(Xa3',Ya3',Za3')	···
	PART b	(Xb1',Yb1',Zb1')	(Xb2',Yb2',Zb2')	(Xb3',Yb3',Zb3')	···
	PART c	(Xc1',Yc1',Zc1')	(Xc2',Yc2',Zc2')	(Xc3',Yc3',Zc3')	···
	⋮	⋮	⋮	⋮	···

FIG.13

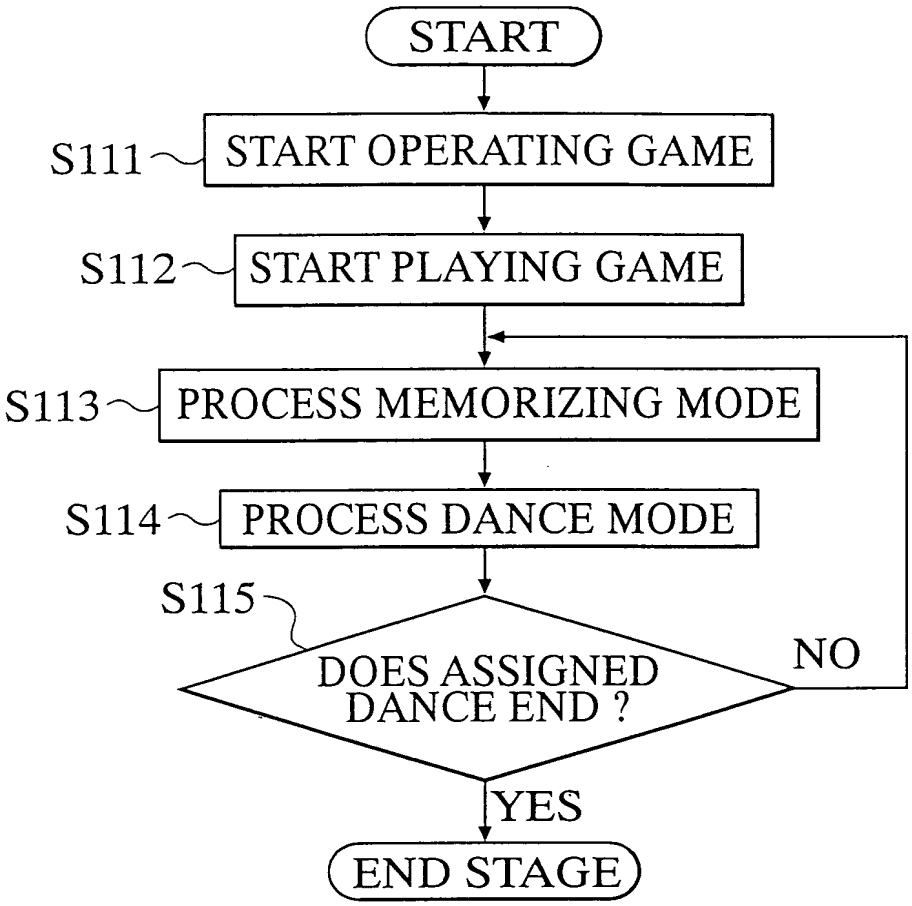
START
S111
START OPERATING GAME
S112
START PLAYING GAME
S113
PROCESS MEMORIZING MODE
S114
PROCESS DANCE MODE
S115
DOES ASSIGNED DANCE END ?
NO
YES
END STAGE

FIG.14

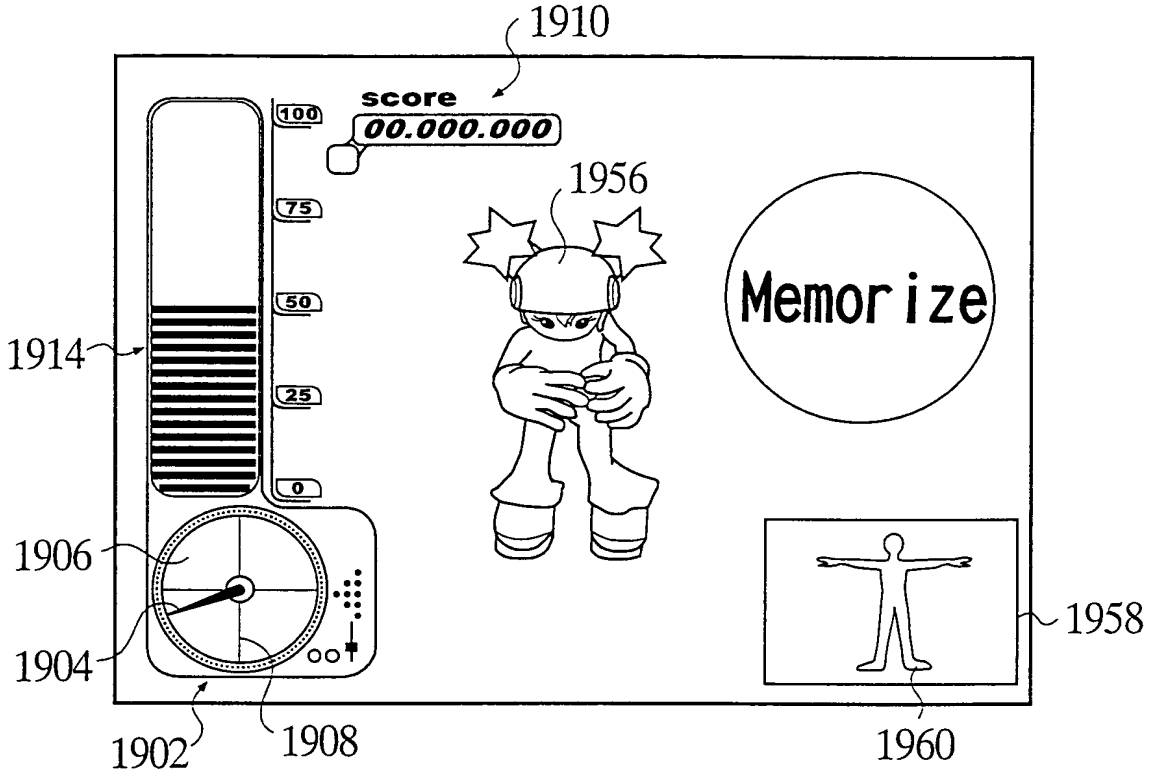
1910
score
00.000.000
100
75
50
25
0
1956
Memorize
1914
1906
1904
1902
1908
1958
1960

FIG.15

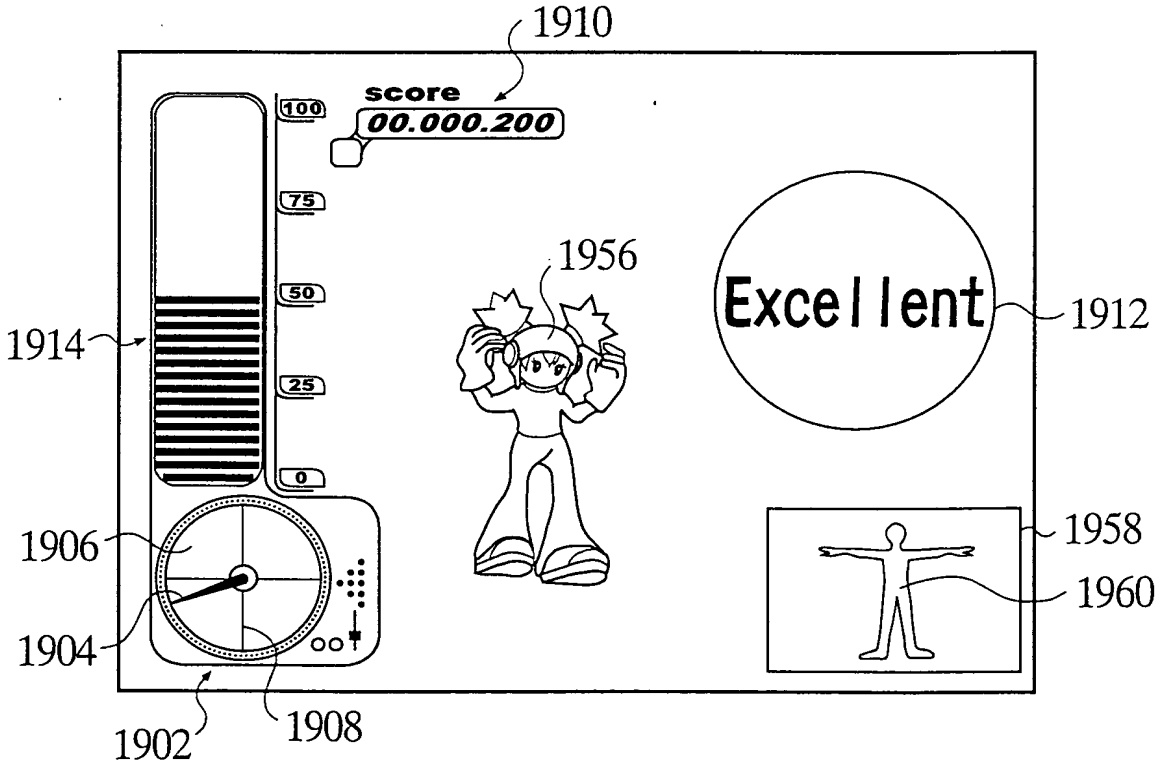
1910
score
00.000.200
100
75
50
25
0
1956
Excellent
1912
1914
1906
1904
1902
1908
1958
1960

FIG.16

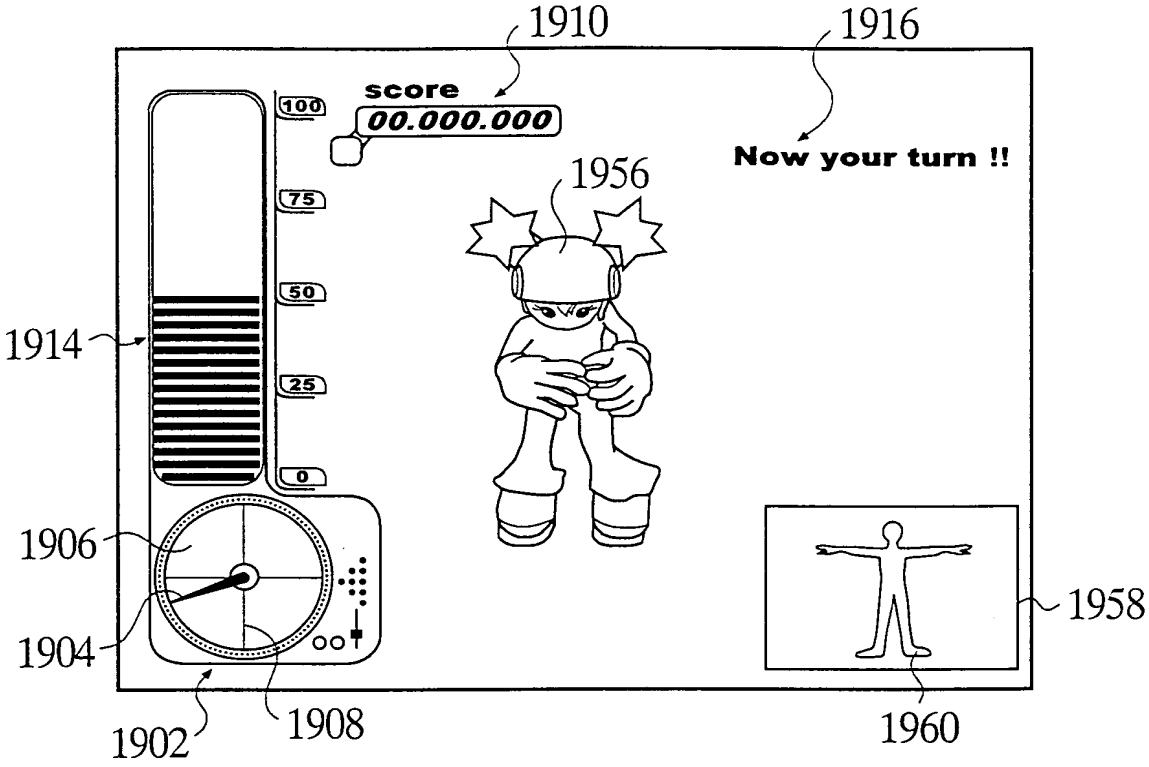
1910
1916
score
00.000.000
Now your turn !!
1956
100
75
50
25
0
1914
1906
1904
1902
1908
1960
1958

FIG.17

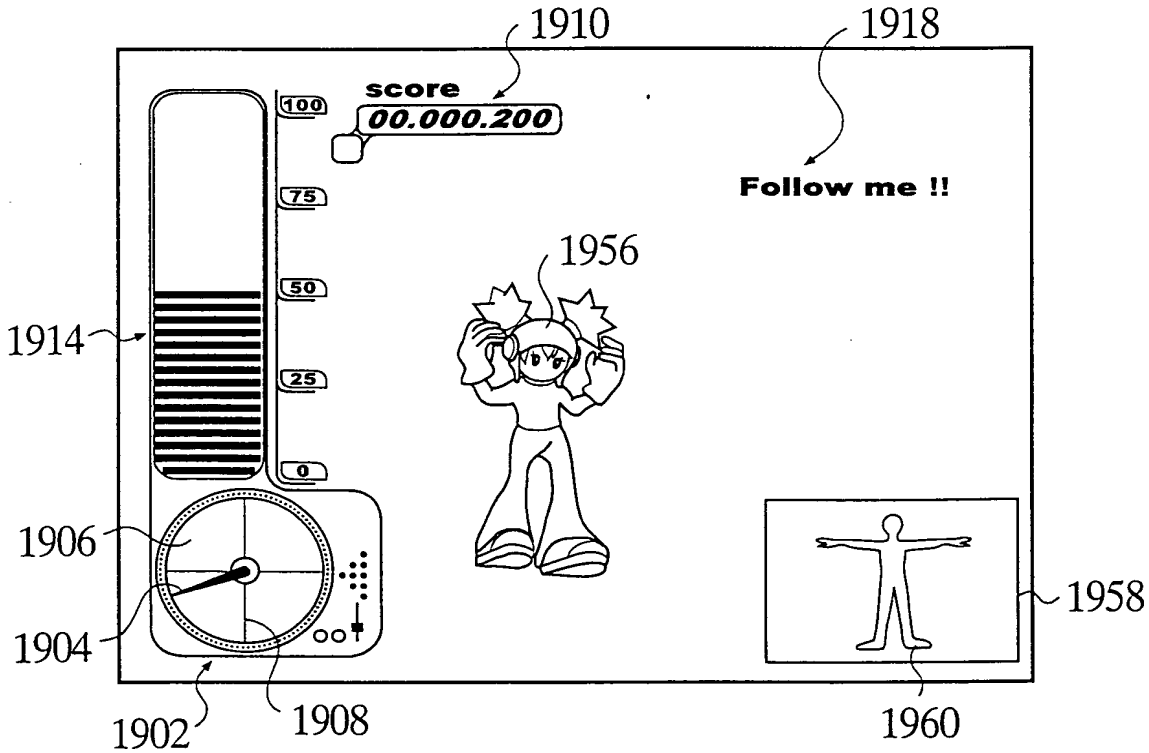
1910
1918
score
00.000.200
Follow me !!
1956
100
75
50
25
0
1914
1906
1904
1902
1908
1960
1958

FIG.18

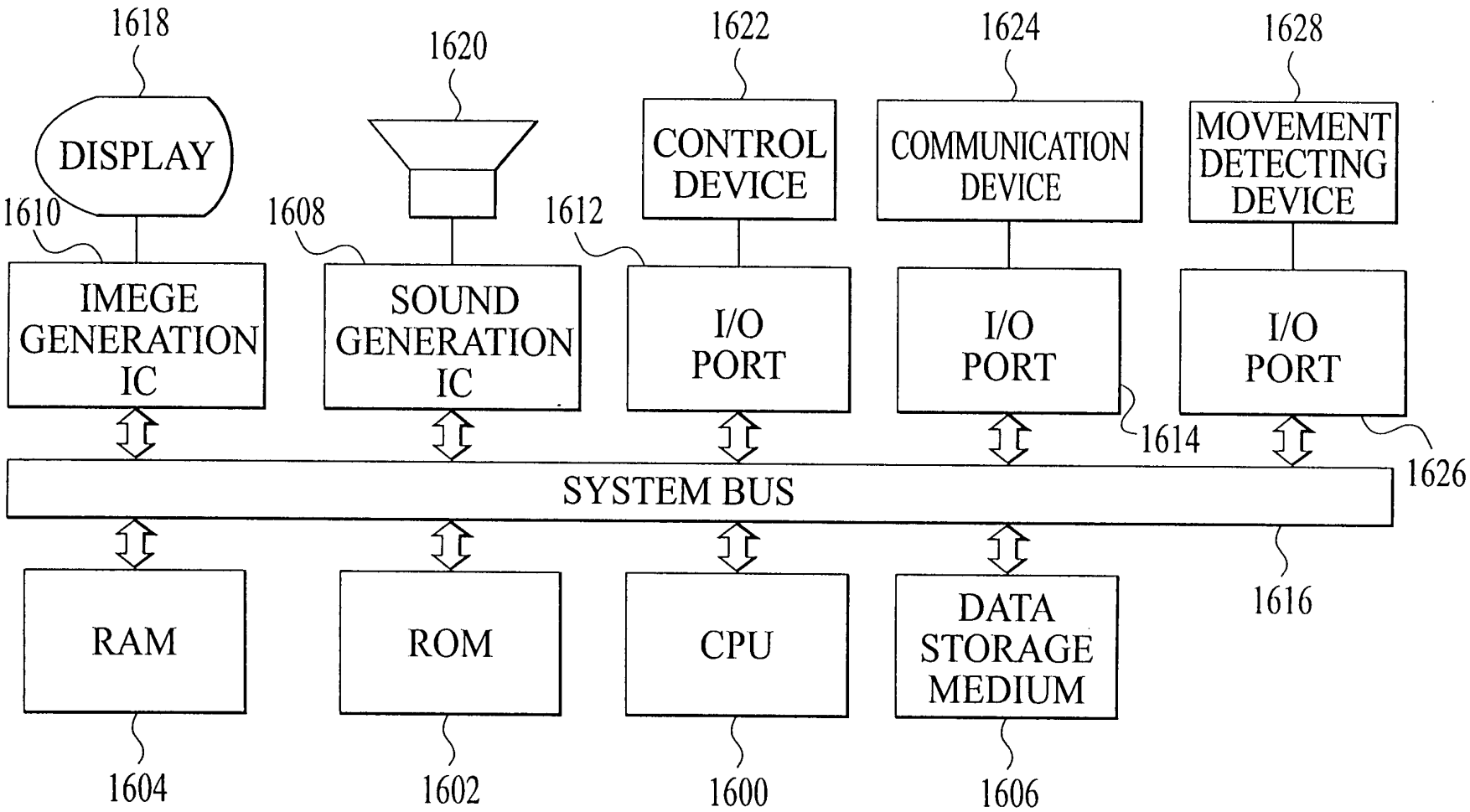
1618
DISPLAY
1620
1622
CONTROL DEVICE
1624
COMMUNICATION DEVICE
1628
MOVEMENT DETECTING DEVICE
1610
1608
1612
IMEGE GENERATION IC
SOUND GENERATION IC
I/O PORT
I/O PORT
I/O PORT
1614
1626
SYSTEM BUS
1616
RAM
ROM
CPU
DATA STORAGE MEDIUM
1604
1602
1600
1606

FIG.19A

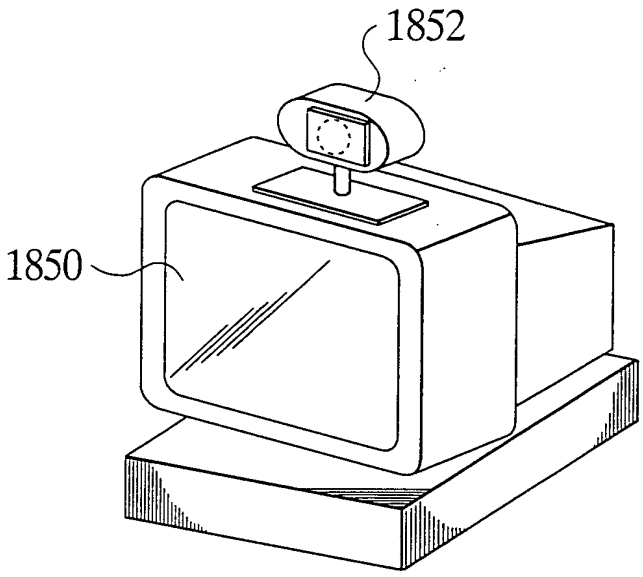

FIG.19B

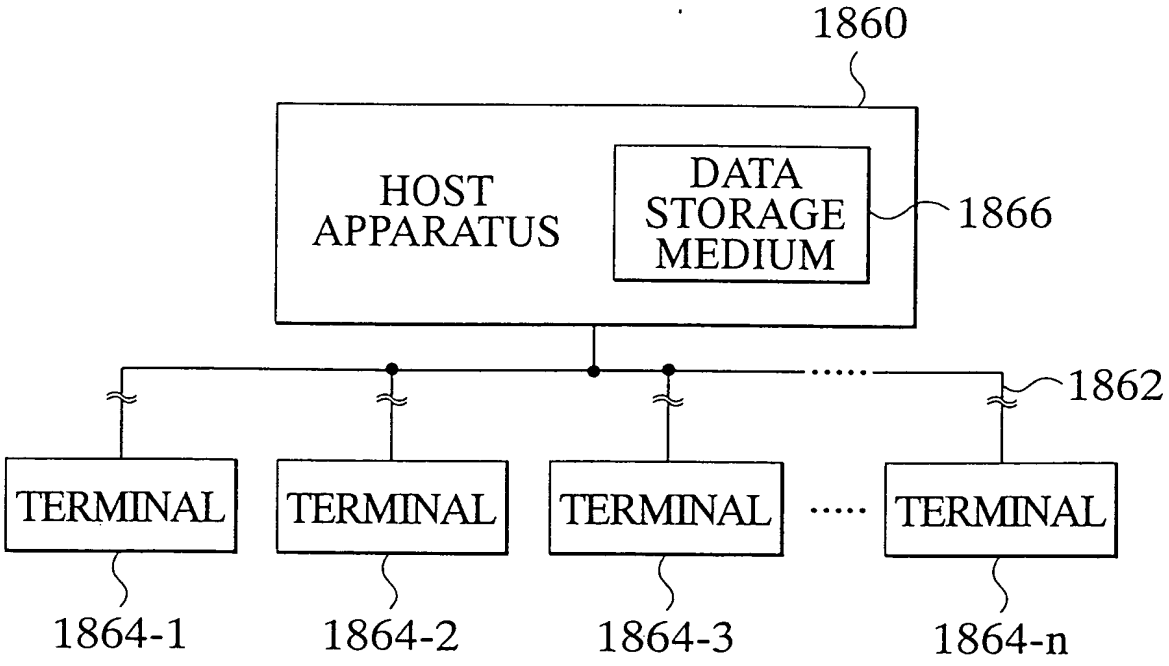

FIG.20

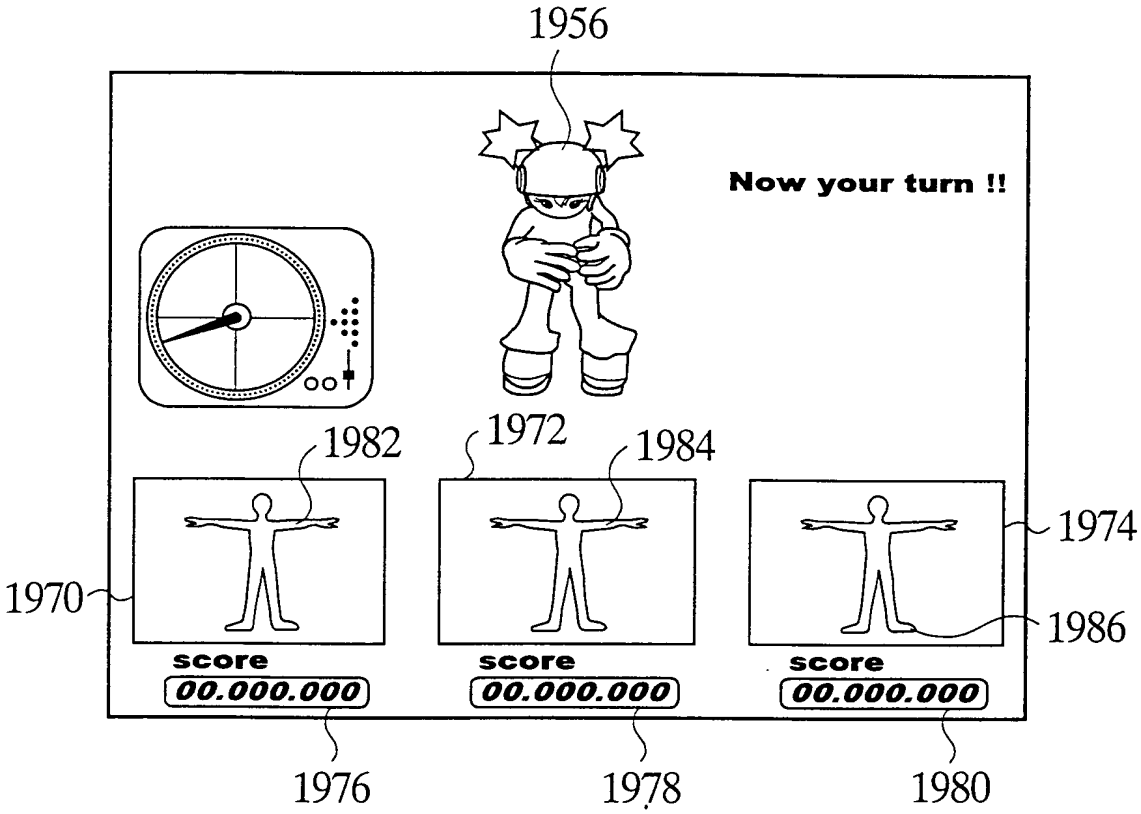
1956
Now your turn !!
1982
1972
1984
1974
1970
1986
score
00.000.000
score
00.000.000
score
00.000.000
1976
1978
1980

FIG.21

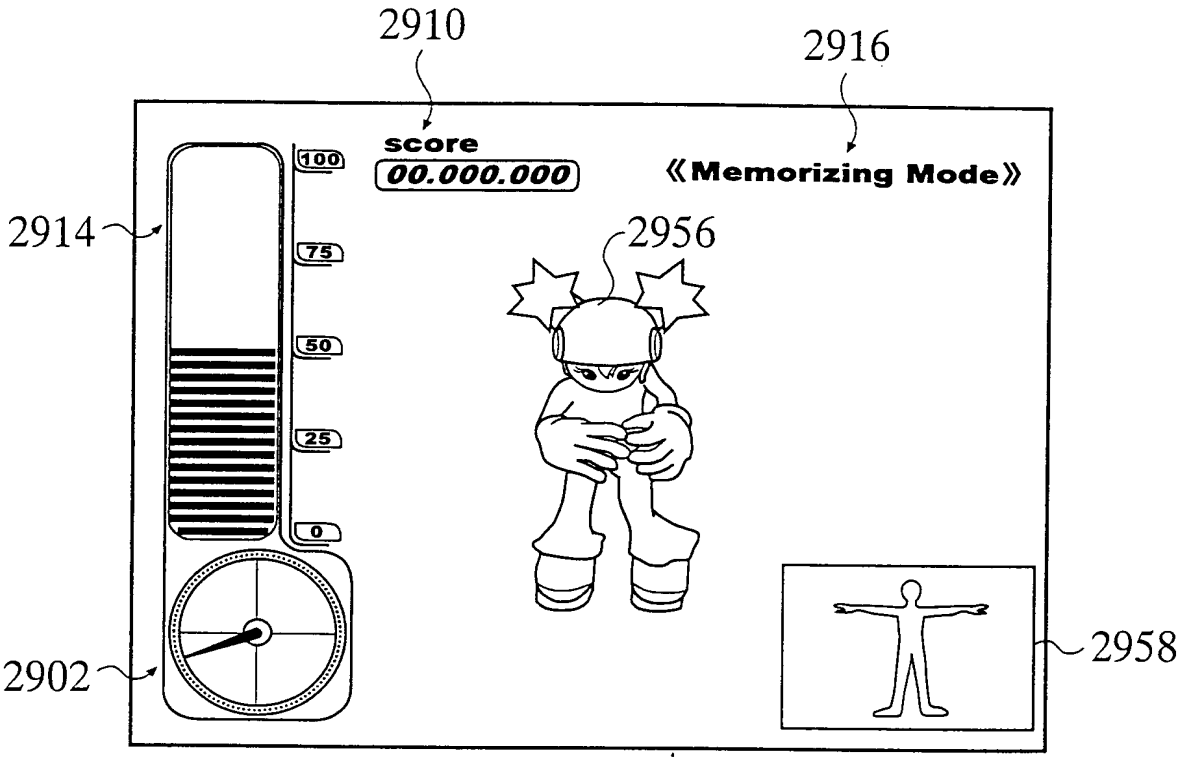
2910
2916
score
00.000.000
《Memorizing Mode》
2914
2956
100
75
50
25
0
2902
2958

FIG.22

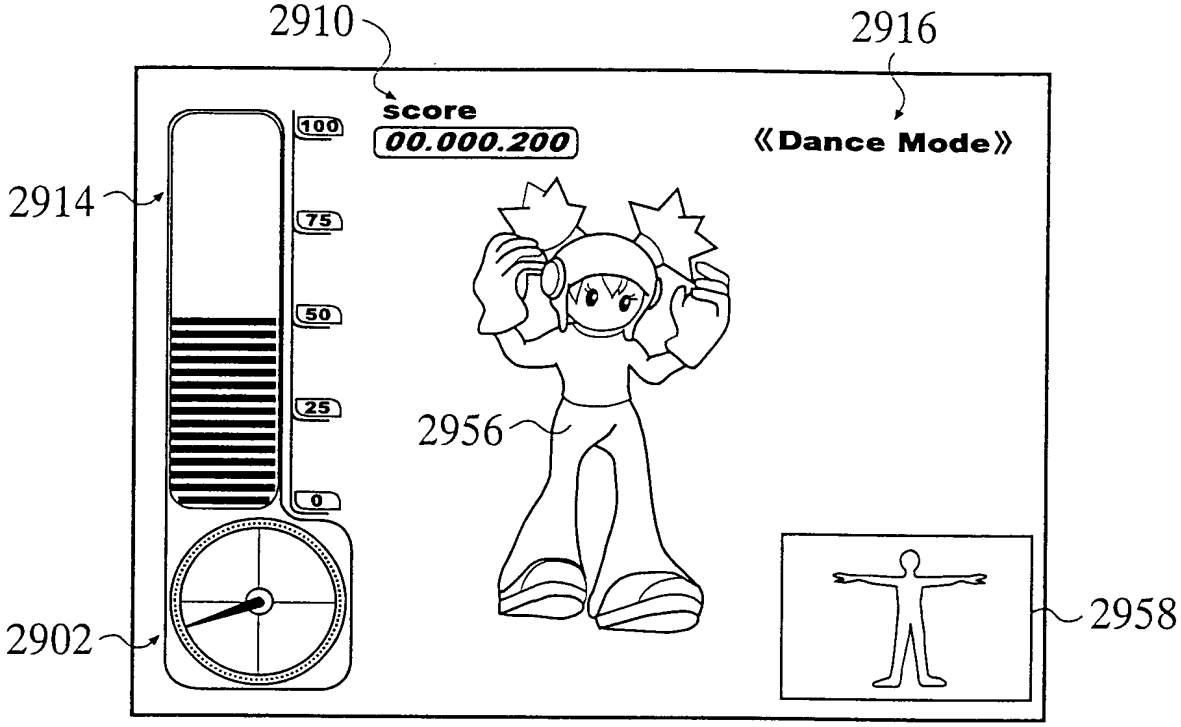
2910
2916
score
00.000.200
《Dance Mode》
2914
100
75
50
25
0
2956
2902
2958

FIG.23

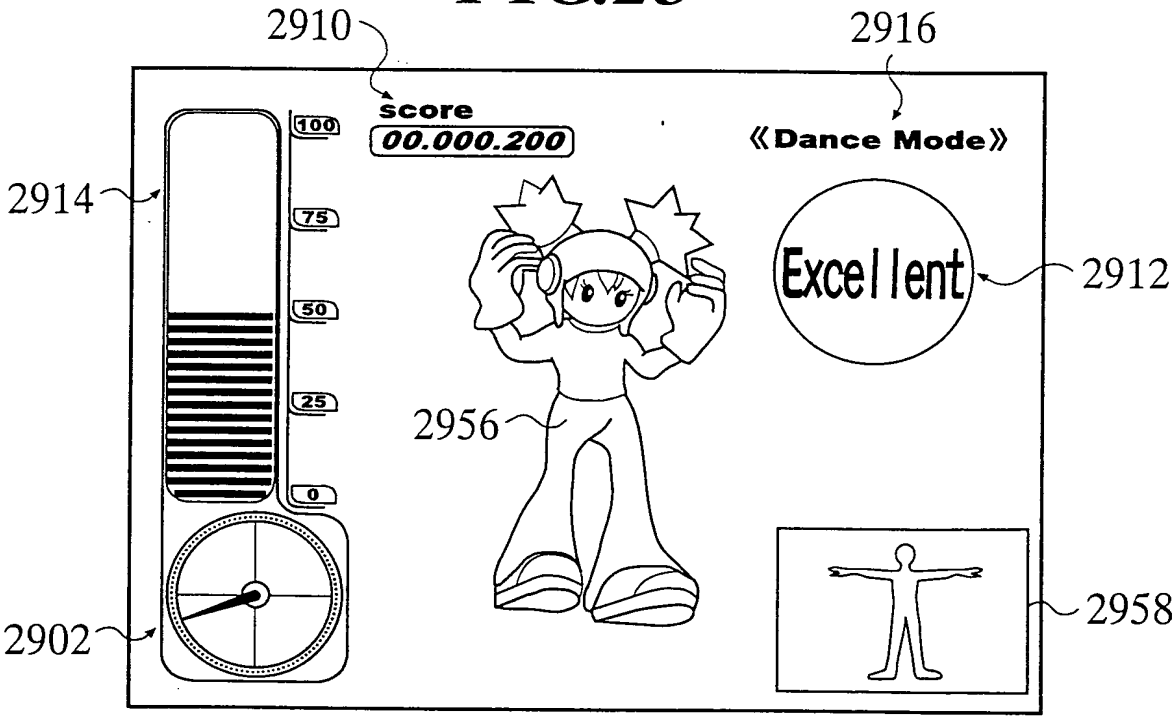
2910
2916
score
00.000.200
《Dance Mode》
2914
100
75
50
25
0
Excellent
2912
2956
2902
2958

FIG.24

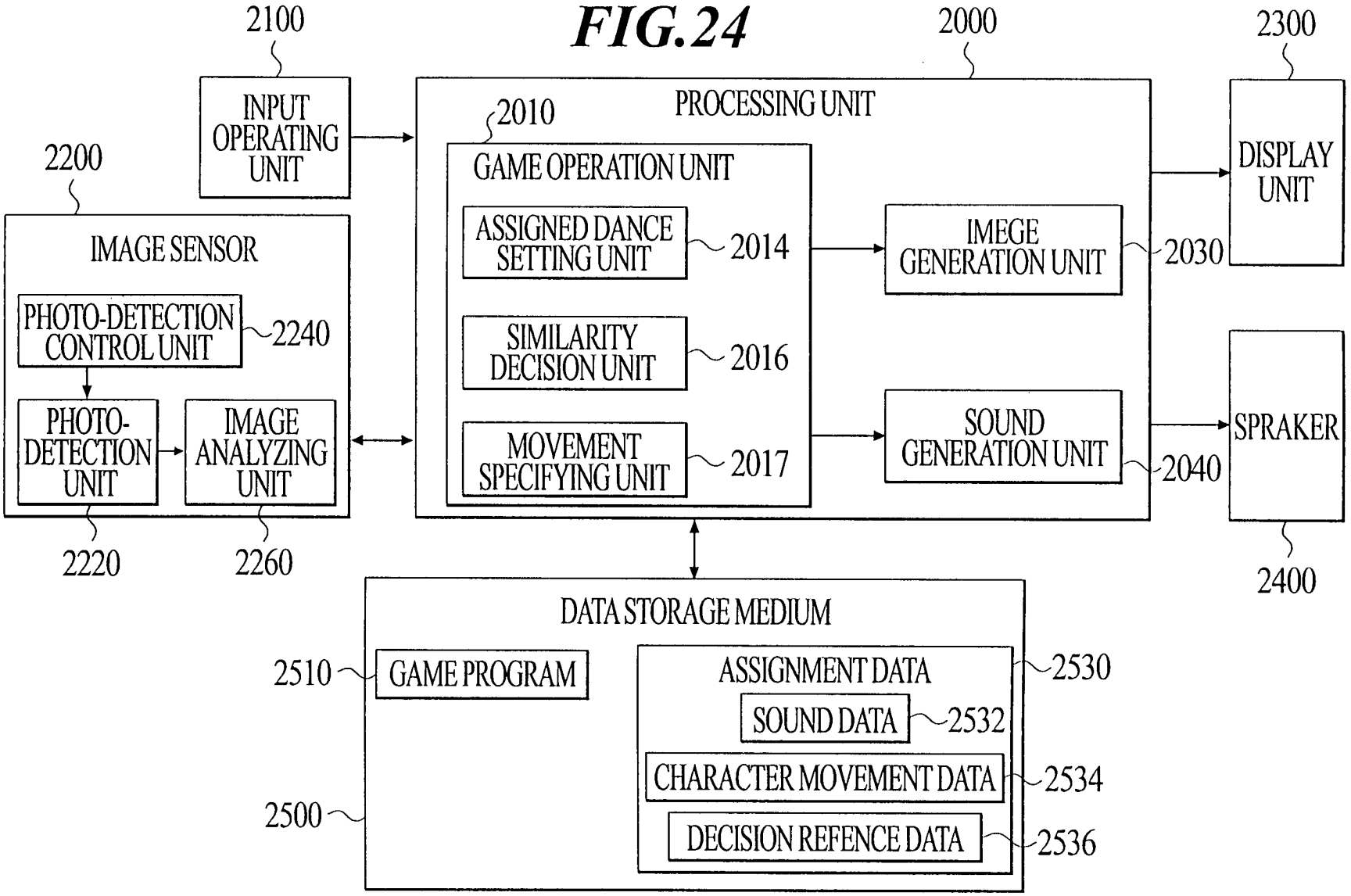
2100
INPUT OPERATING UNIT
2000
PROCESSING UNIT
2010
GAME OPERATION UNIT
ASSIGNED DANCE SETTING UNIT
2014
SIMILARITY DECISION UNIT
2016
MOVEMENT SPECIFYING UNIT
2017
IMEGE GENERATION UNIT
2030
SOUND GENERATION UNIT
2040
2300
DISPLAY UNIT
SPRAKER
2400
2200
IMAGE SENSOR
PHOTO-DETECTION CONTROL UNIT
2240
PHOTO-DETECTION UNIT
IMAGE ANALYZING UNIT
2220
2260
DATA STORAGE MEDIUM
2500
2510
GAME PROGRAM
ASSIGNMENT DATA
2530
SOUND DATA
2532
CHARACTER MOVEMENT DATA
2534
DECISION REFENCE DATA
2536

FIG.25

2534

(COORDINATES:X,Y,Z)

		POSITION DATA			
		FRAME 1	FRAME 2	FRAME 3	···
DANCE 1	PART a	(Xa1,Ya1,Za1)	(Xa2,Ya2,Za2)	(Xa3,Ya3,Za3)	···
	PART b	(Xb1,Yb1,Zb1)	(Xb2,Yb2,Zb2)	(Xb3,Yb3,Zb3)	···
	PART c	(Xc1,Yc1,Zc1)	(Xc2,Yc2,Zc2)	(Xc3,Yc3,Zc3)	···
	⋮	⋮	⋮	⋮	···
DANCE 2	PART a	(Xa1',Ya1',Za1')	(Xa2',Ya2',Za2')	(Xa3',Ya3',Za3')	···
	PART b	(Xb1',Yb1',Zb1')	(Xb2',Yb2',Zb2')	(Xb3',Yb3',Zb3')	···
	PART c	(Xc1',Yc1',Zc1')	(Xc2',Yc2',Zc2')	(Xc3',Yc3',Zc3')	···
	⋮	⋮	⋮	⋮	···

FIG.26

2536

(DIRECTION α ,MAGNITUDE β , SPEED γ)

		DECISION REFERENCE DATA			
		t1	t2	t3	···
DANCE 1	1ST REGION	(α 11, β 11, γ 11)	(α 12, β 12, γ 12)	(α 13, β 13, γ 13)	···
	2ND REGION	(α 21, β 21, γ 21)	(α 22, β 22, γ 22)	(α 23, β 23, γ 23)	···
	3RD REGION	(α 31, β 31, γ 31)	(α 32, β 32, γ 32)	(α 33, β 33, γ 33)	···
	4TH REGION	(α 41, β 41, γ 41)	(α 42, β 42, γ 42)	(α 43, β 43, γ 43)	···
DANCE 2	1ST REGION	(α 11', β 11', γ 11')	(α 12', β 12', γ 12')	(α 13', β 13', γ 13')	···
	2ND REGION	(α 21', β 21', γ 21')	(α 22', β 22', γ 22')	(α 23', β 23', γ 23')	···
	3RD REGION	(α 31', β 31', γ 31')	(α 32', β 32', γ 32')	(α 33', β 33', γ 33')	···
	4TH REGION	(α 41', β 41', γ 41')	(α 42', β 42', γ 42')	(α 43', β 43', γ 43')	···

FIG.27

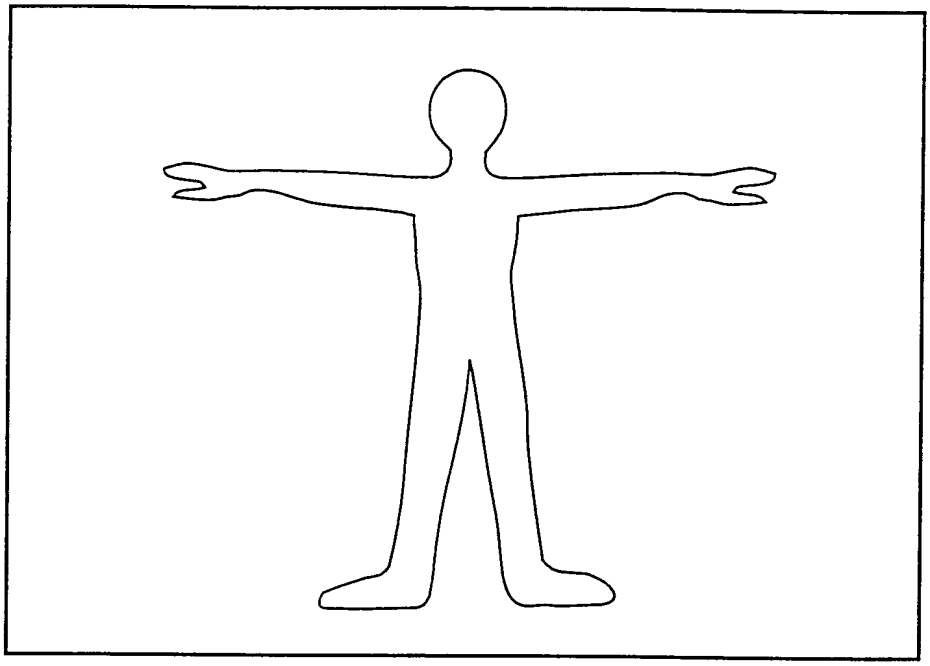

FIG.28

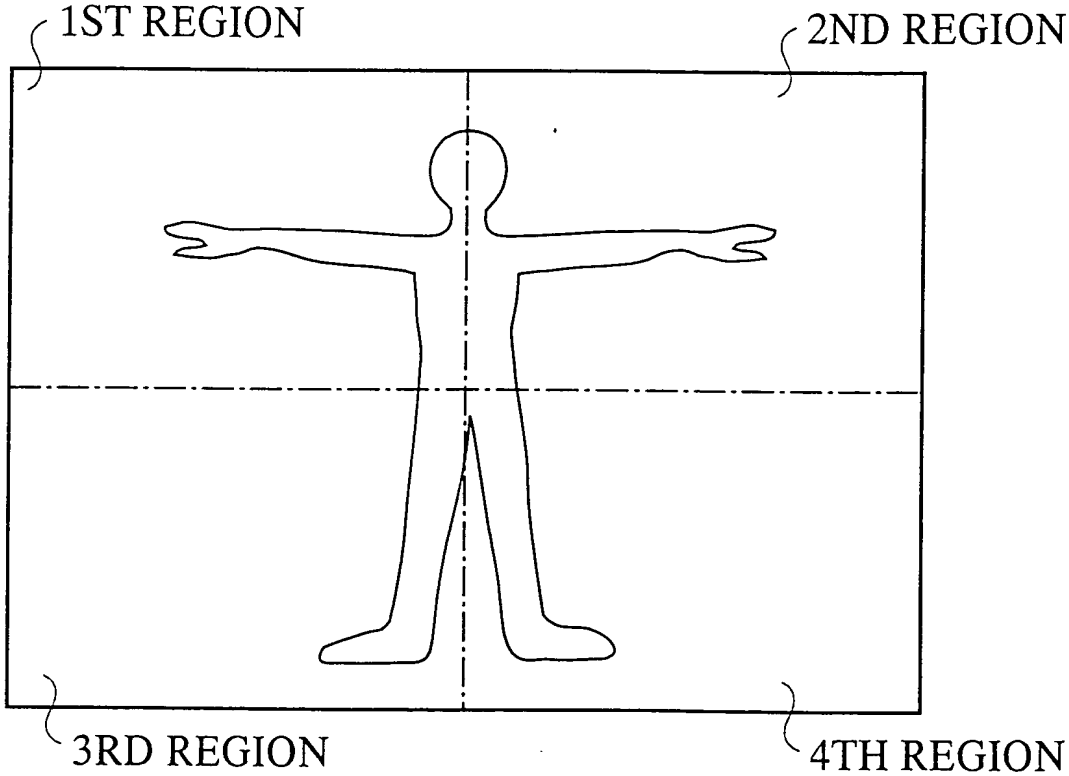

FIG.29

	DIRECTION	MAGNITUDE	SPEED
1ST REGION	$\alpha 1$	$\beta 1$	$\gamma 1$
2ND REGION	$\alpha 2$	$\beta 2$	$\gamma 2$
3RD REGION	$\alpha 3$	$\beta 3$	$\gamma 3$
4TH REGION	$\alpha 4$	$\beta 4$	$\gamma 4$

FIG.30A

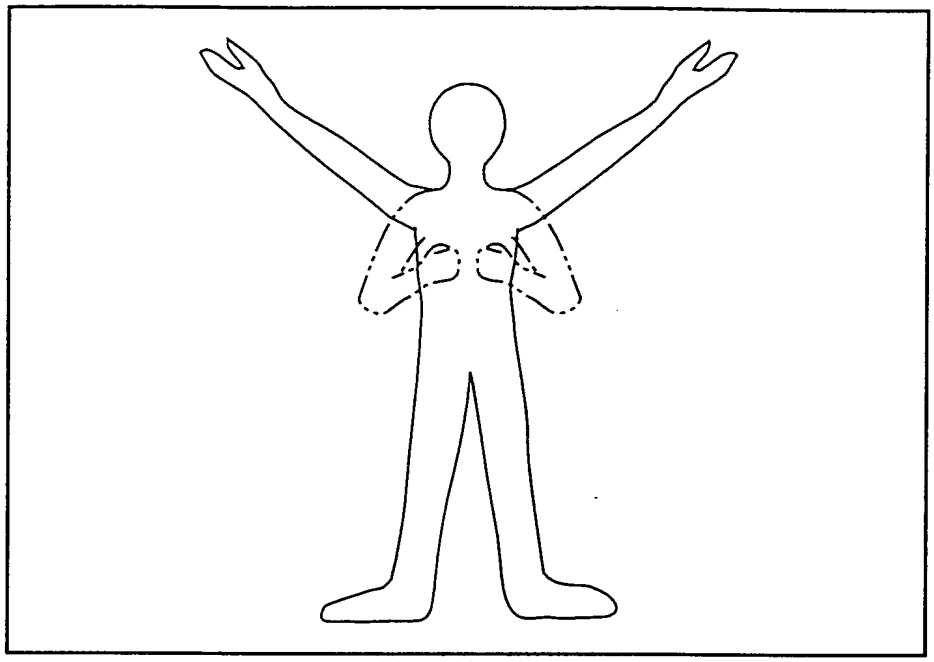

FIG.30B

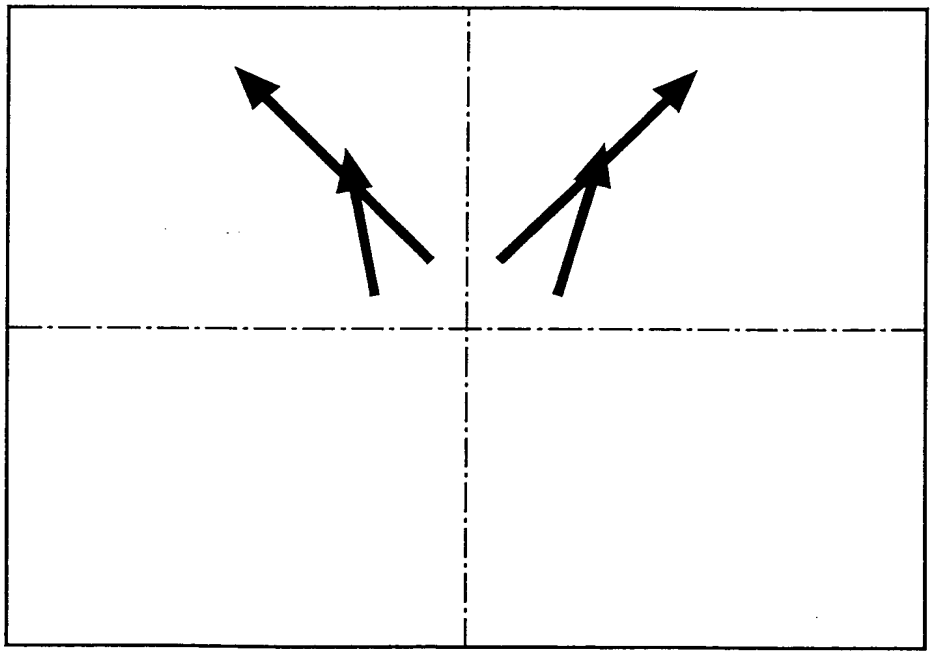

FIG.31A

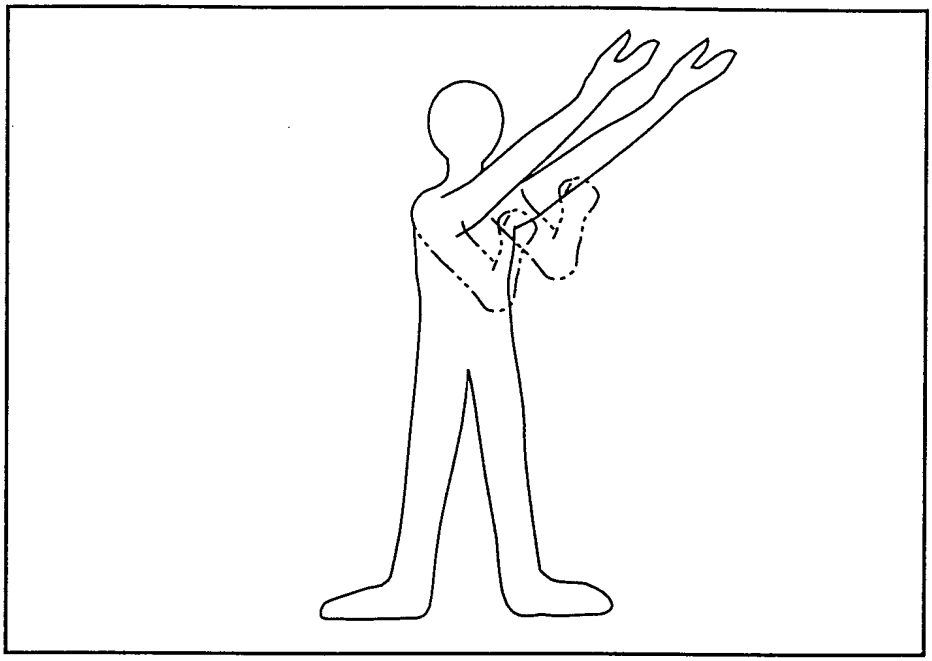

FIG.31B

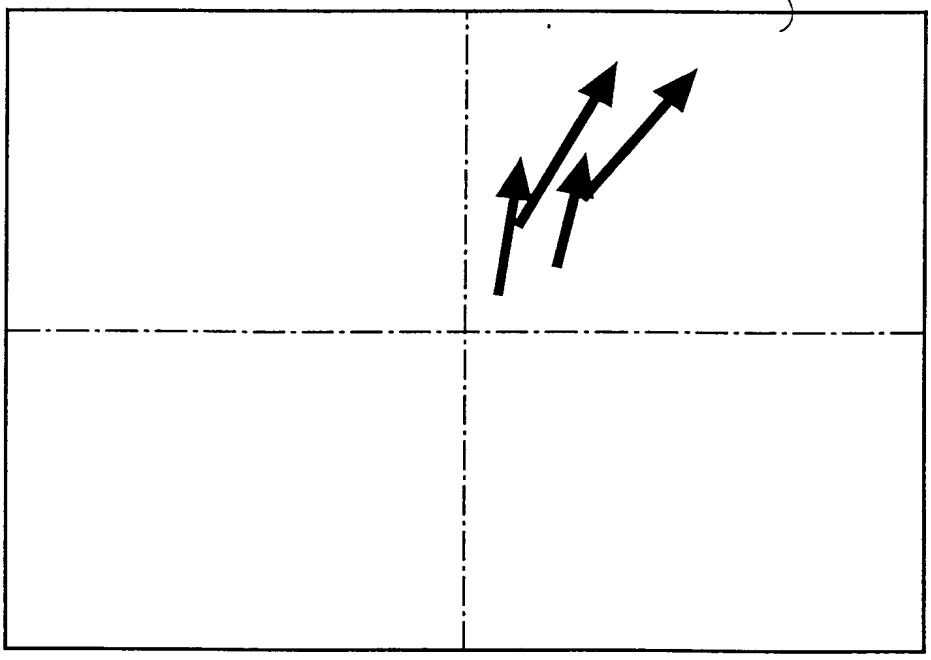

FIG.32

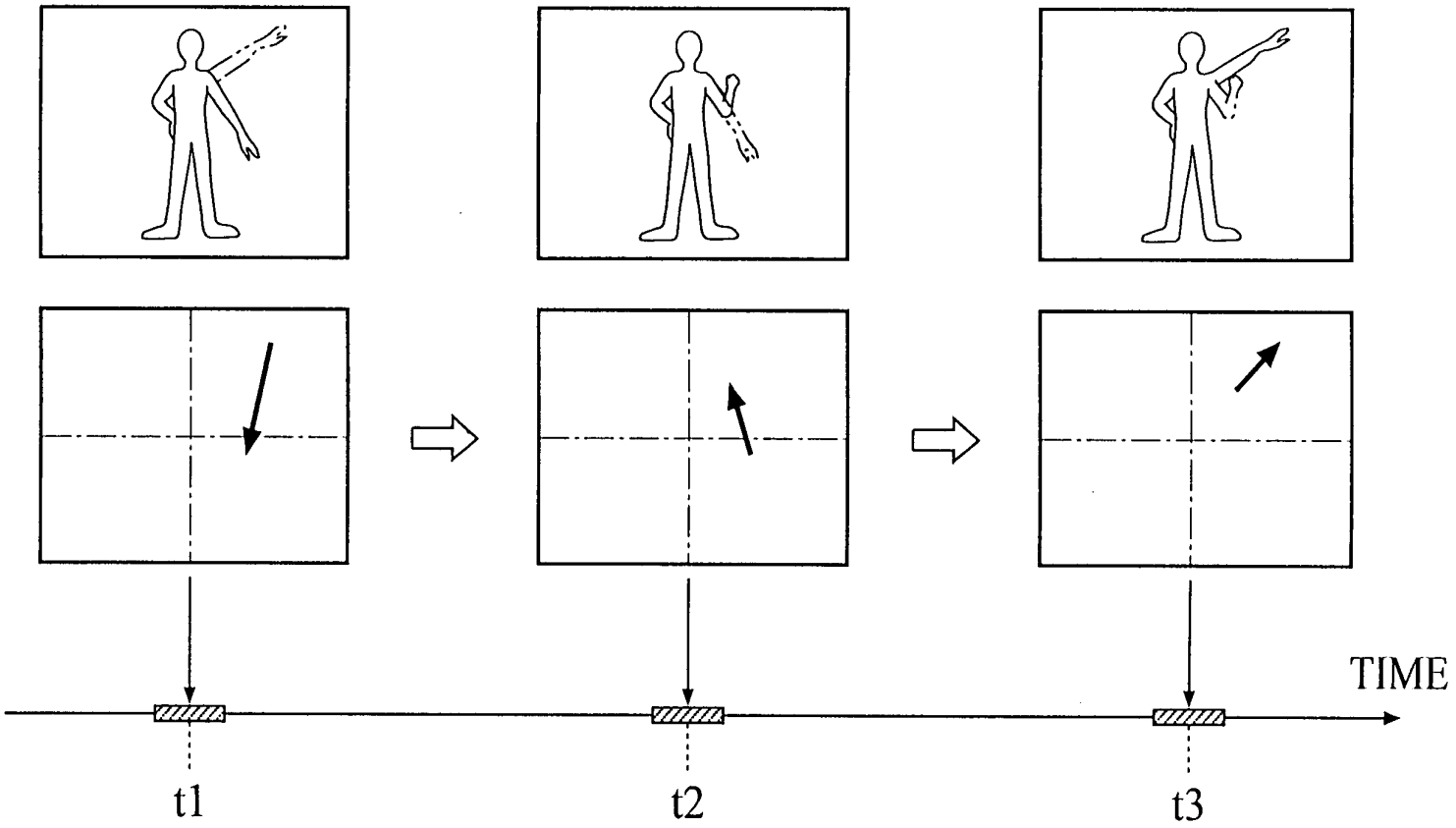

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FIG.33

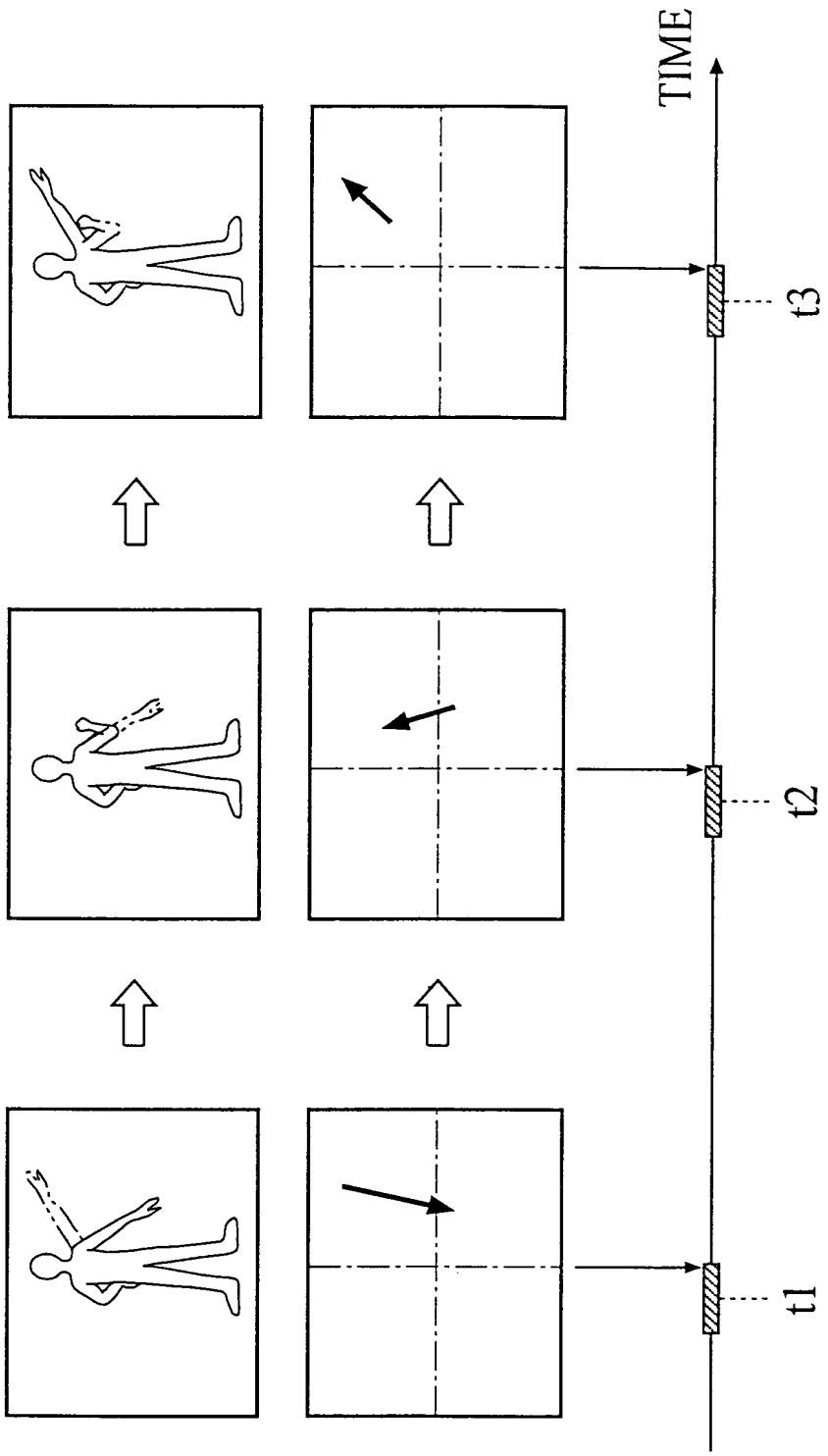


FIG.34A

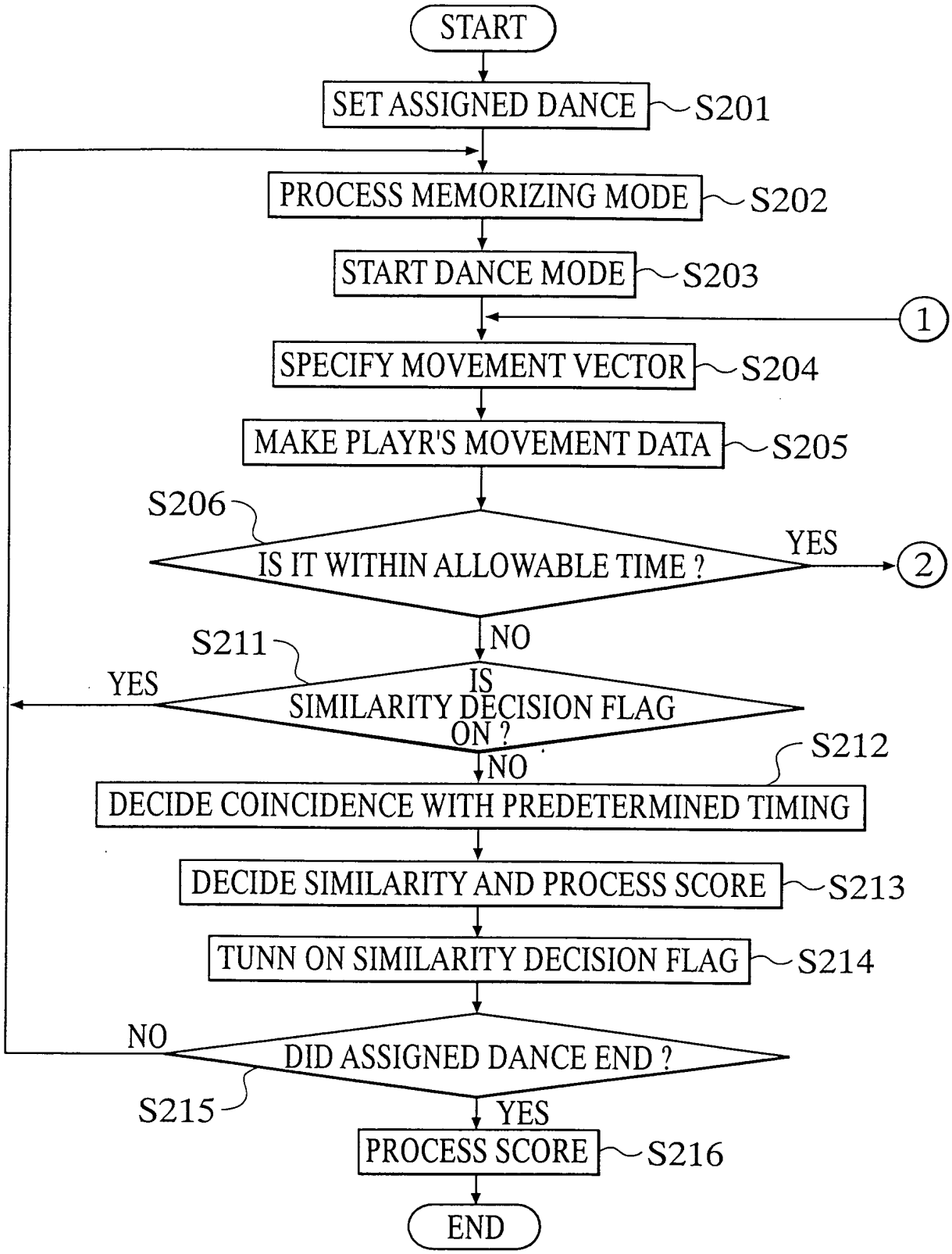

START
SET ASSIGNED DANCE
S201
PROCESS MEMORIZING MODE
S202
START DANCE MODE
S203
1
SPECIFY MOVEMENT VECTOR
S204
MAKE PLAYR'S MOVEMENT DATA
S205
S206
IS IT WITHIN ALLOWABLE TIME ?
YES
2
NO
S211
IS SIMILARITY DECISION FLAG ON ?
YES
NO
S212
DECIDE COINCIDENCE WITH PREDETERMINED TIMING
DECIDE SIMILARITY AND PROCESS SCORE
S213
TUNN ON SIMILARITY DECISION FLAG
S214
NO
DID ASSIGNED DANCE END ?
S215
YES
PROCESS SCORE
S216
END

FIG.34B

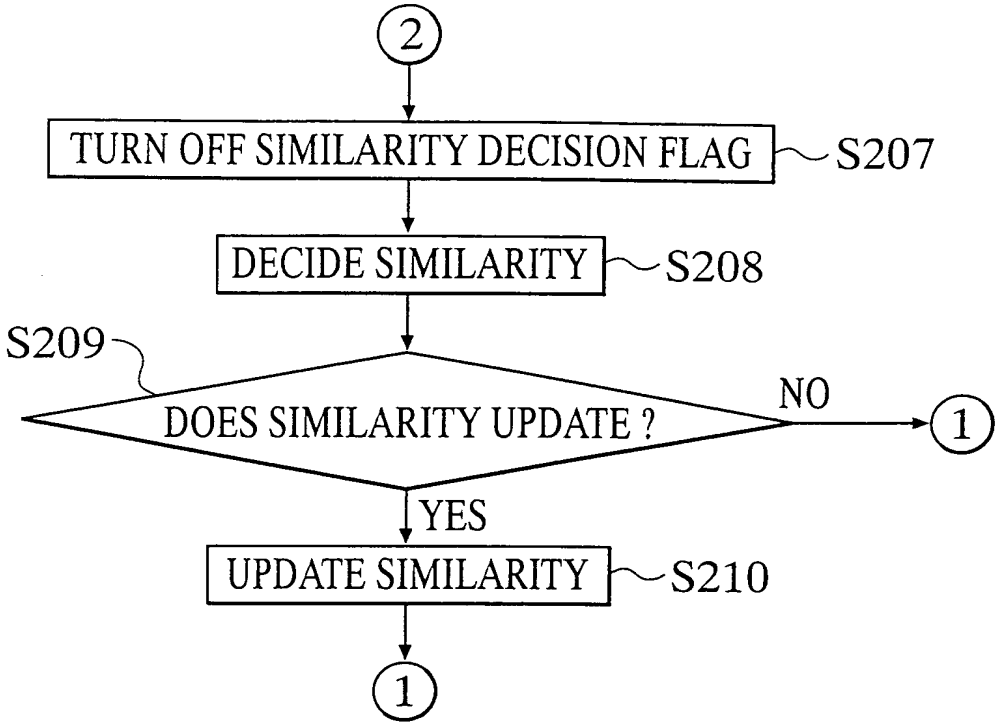

2
TURN OFF SIMILARITY DECISION FLAG
S207
DECIDE SIMILARITY
S208
S209
DOES SIMILARITY UPDATE ?
NO
1
YES
UPDATE SIMILARITY
S210
1

FIG.35

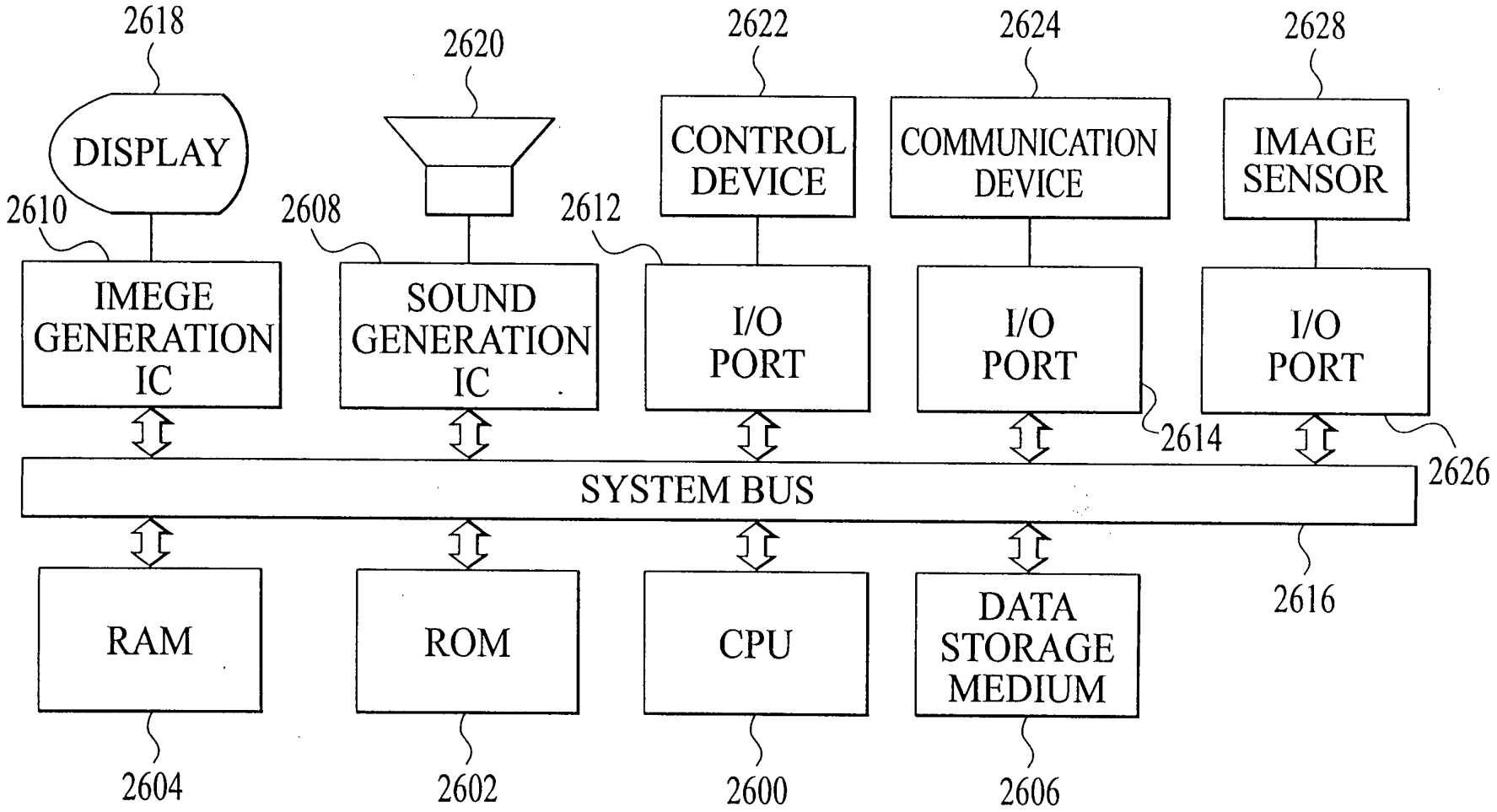

2618
DISPLAY
2620
2622
CONTROL DEVICE
2624
COMMUNICATION DEVICE
2628
IMAGE SENSOR
2610
2608
2612
IMEGE GENERATION IC
SOUND GENERATION IC
I/O PORT
I/O PORT
I/O PORT
2614
2626
SYSTEM BUS
2616
RAM
ROM
CPU
DATA STORAGE MEDIUM
2604
2602
2600
2606

FIG.36

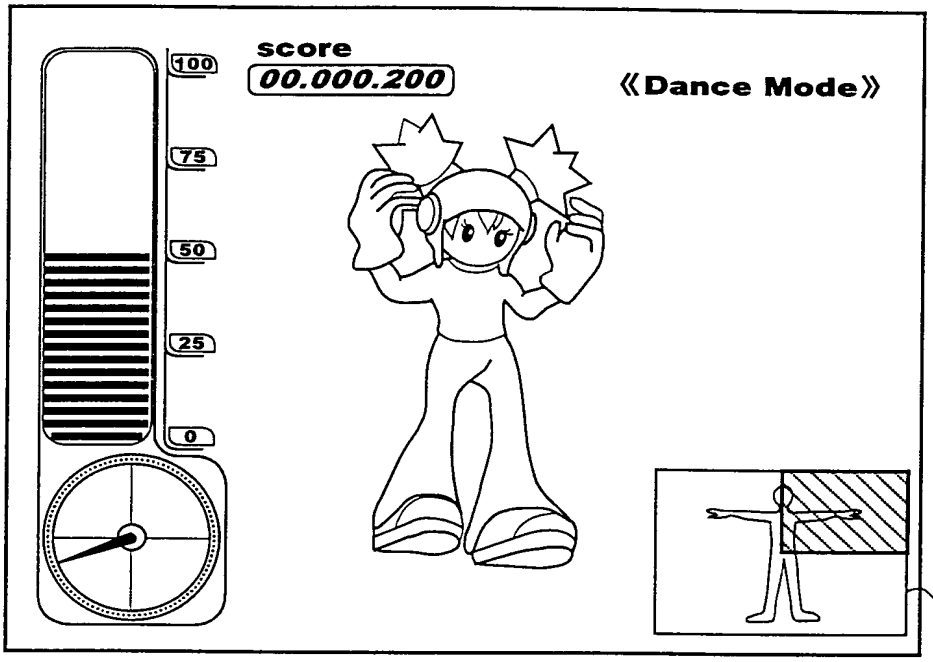


FIG.37

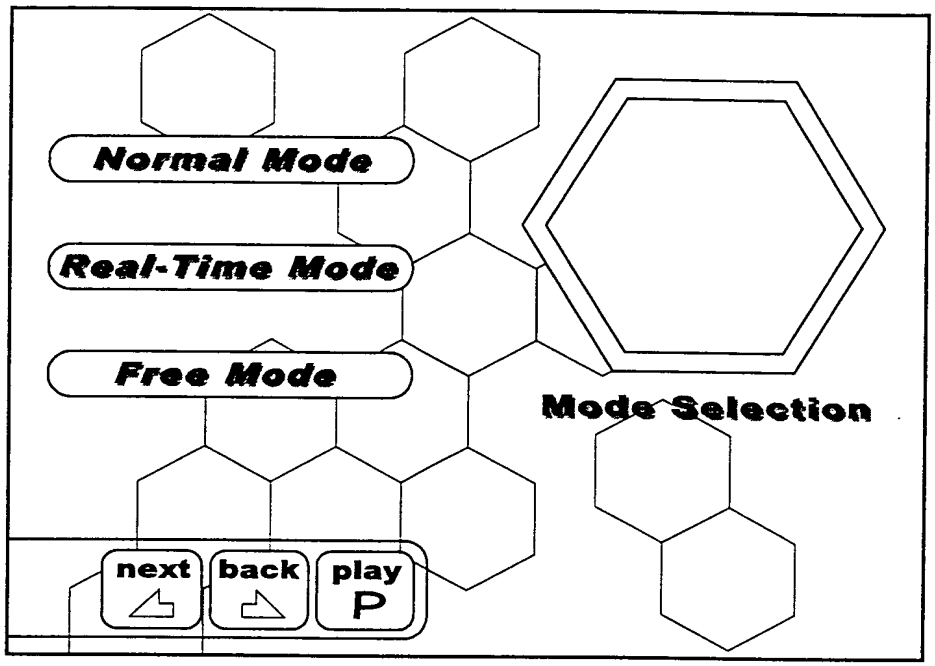

Normal Mode
Real-Time Mode
Free Mode
Mode Selection
next
back
play
P

FIG.38

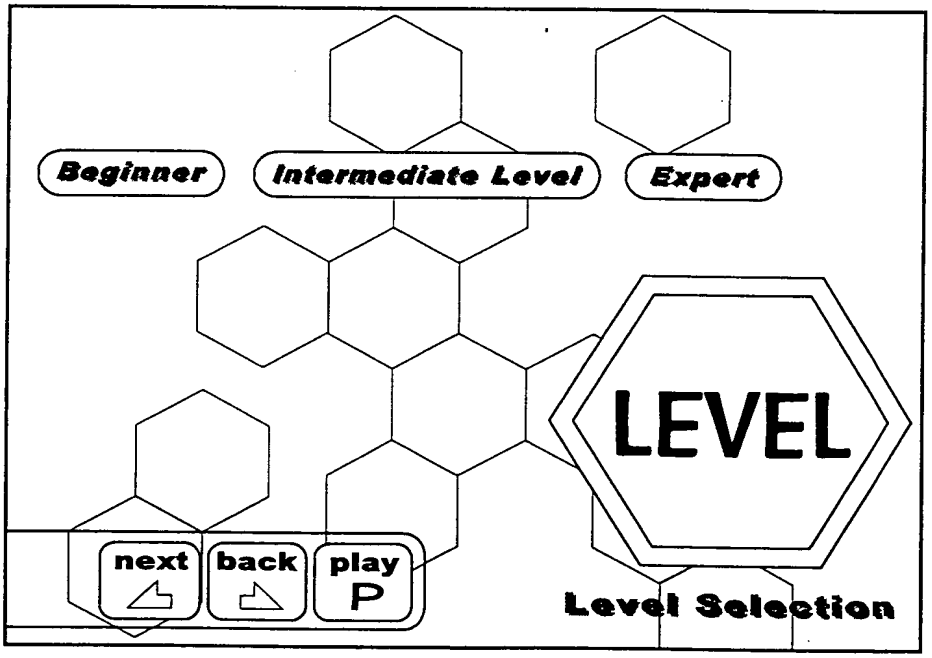

Beginner
Intermediate Level
Expert
LEVEL
next
back
play
P
Level Selection

FIG.39

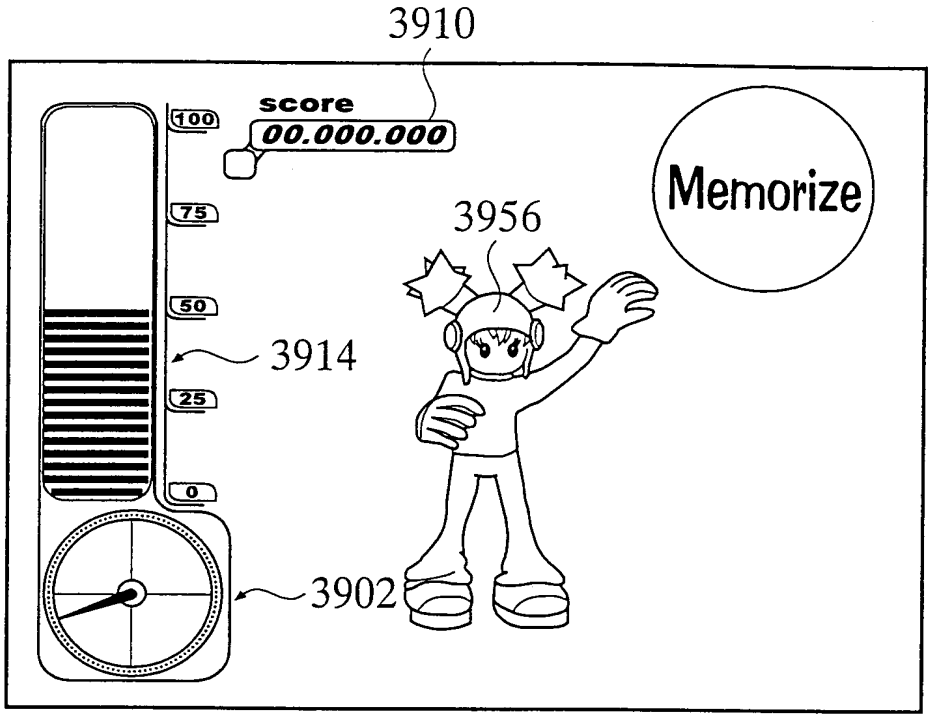

3910
score
00.000.000
100
75
50
25
0
3914
3956
Memorize
3902

FIG.40

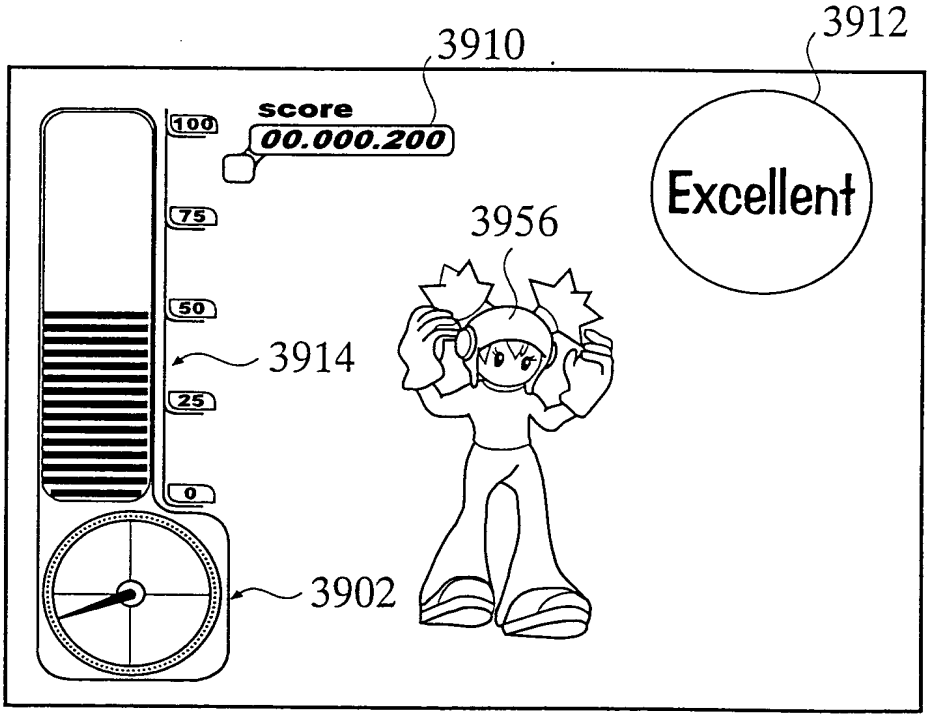

3910
3912
score
00.000.200
100
75
50
25
0
3914
3956
Excellent
3902

FIG.41A

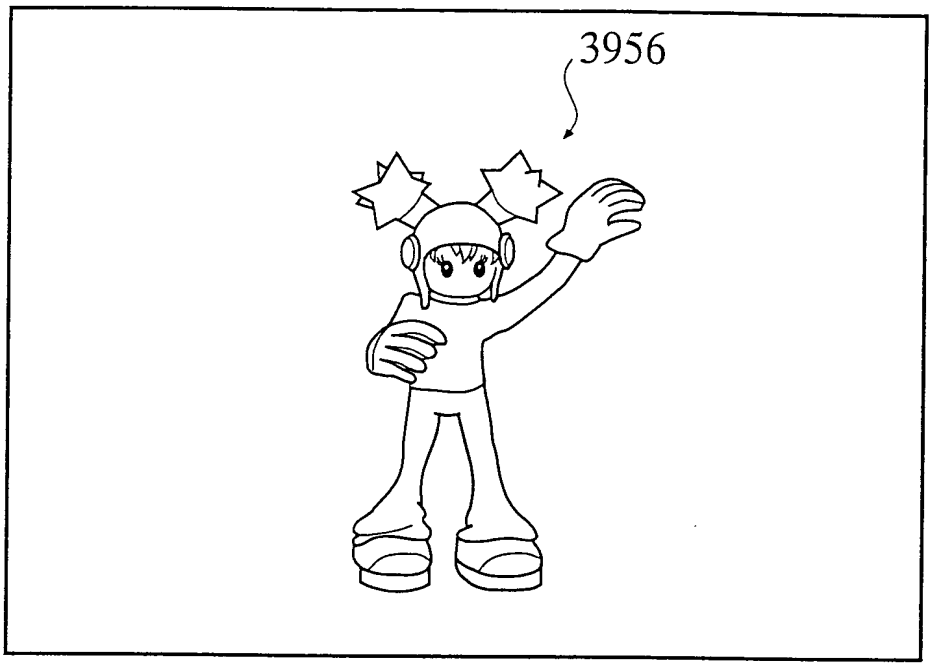


FIG.41B

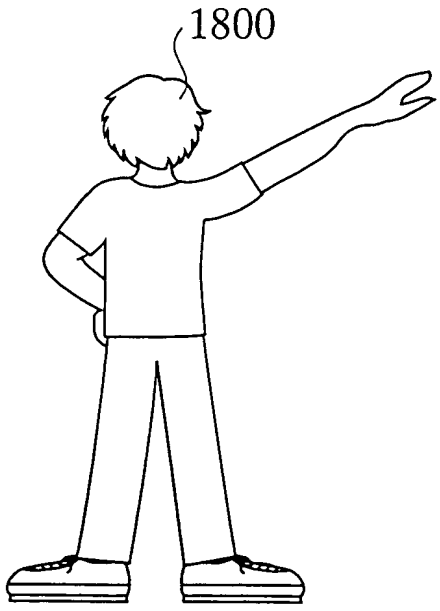


FIG. 42

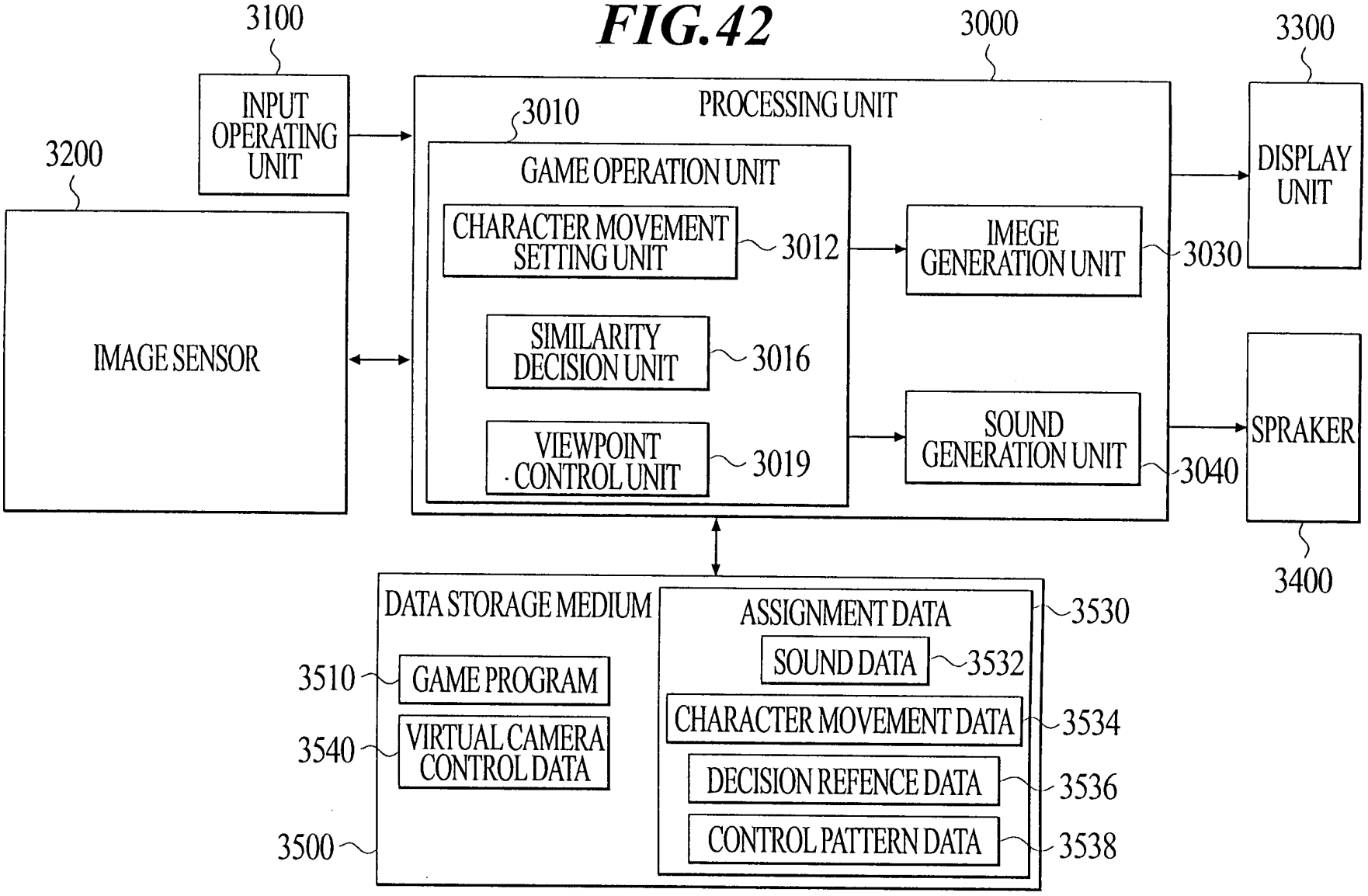

3100
INPUT OPERATING UNIT
3000
PROCESSING UNIT
3300
DISPLAY UNIT
3200
IMAGE SENSOR
3010
GAME OPERATION UNIT
CHARACTER MOVEMENT SETTING UNIT
3012
IMEGE GENERATION UNIT
3030
SIMILARITY DECISION UNIT
3016
VIEWPOINT CONTROL UNIT
3019
SOUND GENERATION UNIT
3040
SPRAKER
3400
DATA STORAGE MEDIUM
3500
ASSIGNMENT DATA
3530
SOUND DATA
3532
3510
GAME PROGRAM
3540
VIRTUAL CAMERA CONTROL DATA
CHARACTER MOVEMENT DATA
3534
DECISION REFENCE DATA
3536
CONTROL PATTERN DATA
3538

FIG.43

3538

MODE	LEVEL	BEFORE DANCE		DURING DANCE	
		CHARACTER CONTROL PATTERN	CAMERA CONTROL PATTERN	CHARACTER CONTROL PATTERN	CAMERA CONTROL PATTERN
NORMAL	BIGINNER	A	1	A	1
	INTERMEDIATE	A	1	A	2
	EXPERT	A	1	B	1
REAL-TIME	—	N/A	N/A	A	1
FREE	—	N/A	N/A	B	2

FIG.44

3534

(COORDINATES:X,Y,Z)

DANCE 1		POSITION DATA			
		FRAME 1	FRAME 2	FRAME 3	···
A	PART a	(Xa11,Ya11,Za11)	(Xa12,Ya12,Za12)	(Xa13,Ya13,Za13)	···
	PART b	(Xb11,Yb11,Zb11)	(Xb12,Yb12,Zb12)	(Xb13,Yb13,Zb13)	···
	PART c	(Xc11,Yc11,Zc11)	(Xc12,Yc12,Zc12)	(Xc13,Yc13,Zc13)	···
	⋮	⋮	⋮	⋮	···
B	PART a	(Xa21,Ya21,Za21)	(Xa22,Ya22,Za22)	(Xa23,Ya23,Za23)	···
	PART b	(Xb21,Yb21,Zb21)	(Xb22,Yb22,Zb22)	(Xb23,Yb23,Zb23)	···
	PART c	(Xc21,Yc21,Zc21)	(Xc22,Yc22,Zc22)	(Xc23,Yc23,Zc23)	···
	⋮	⋮	⋮	⋮	···

FIG.45A

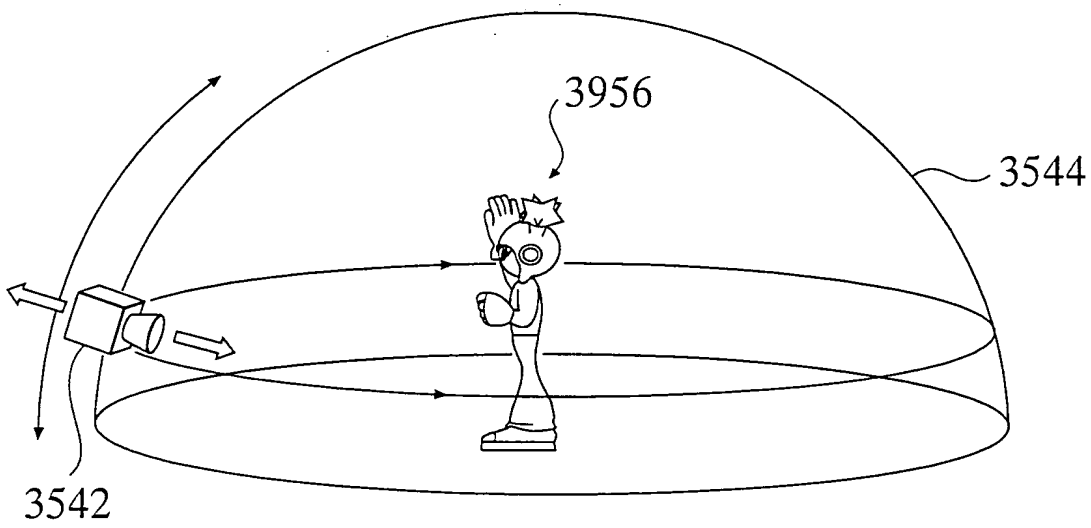


FIG.45B

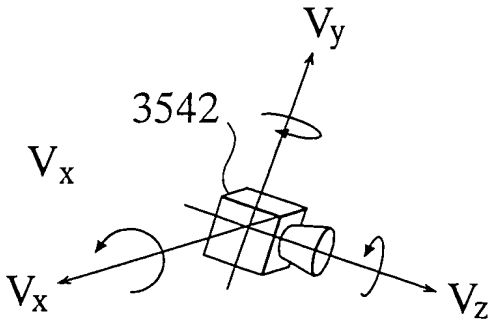


FIG.46

3540

		SET VALUE
CAMERA CONTROL PATTERN 1	POSITION	(Vd11,Vi11,Vk11)
	DIRECTION	(Vx11,Vy11,Vz11)
	ANGLE OF VIEW	Z11
CAMERA CONTROL PATTERN 2	POSITION	(Vd21,Vi21,Vk21)→(Vd22,Vi22,Vk22)→(Vd23,Vi23,Vk23)→(Vd24,Vi24,Vk24)
	DIRECTION	(Vx21,Vy21,Vz21)
	ANGLE OF VIEW	Z21

FIG.47

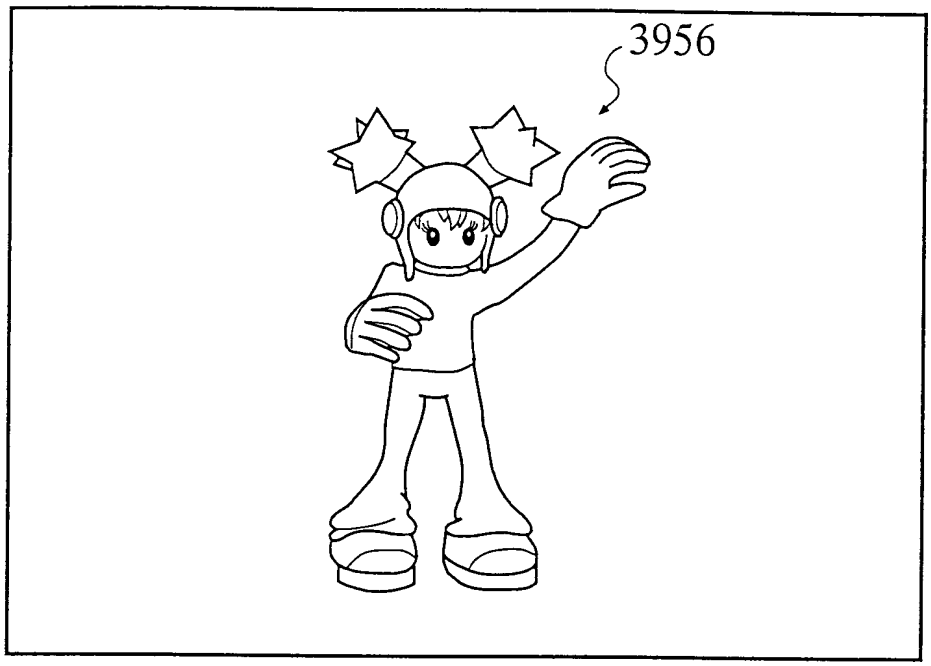


FIG48

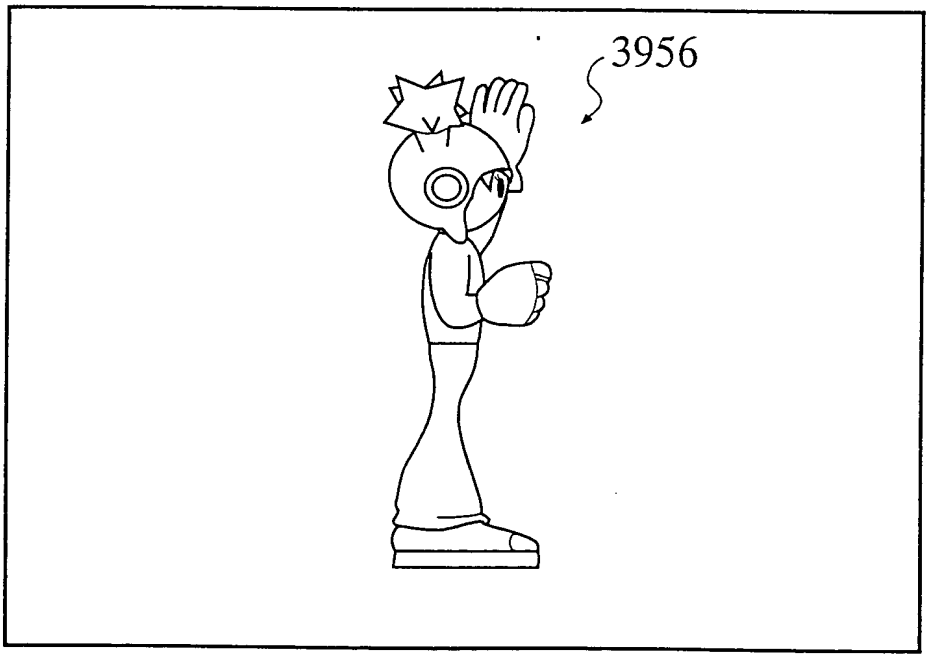


FIG.49

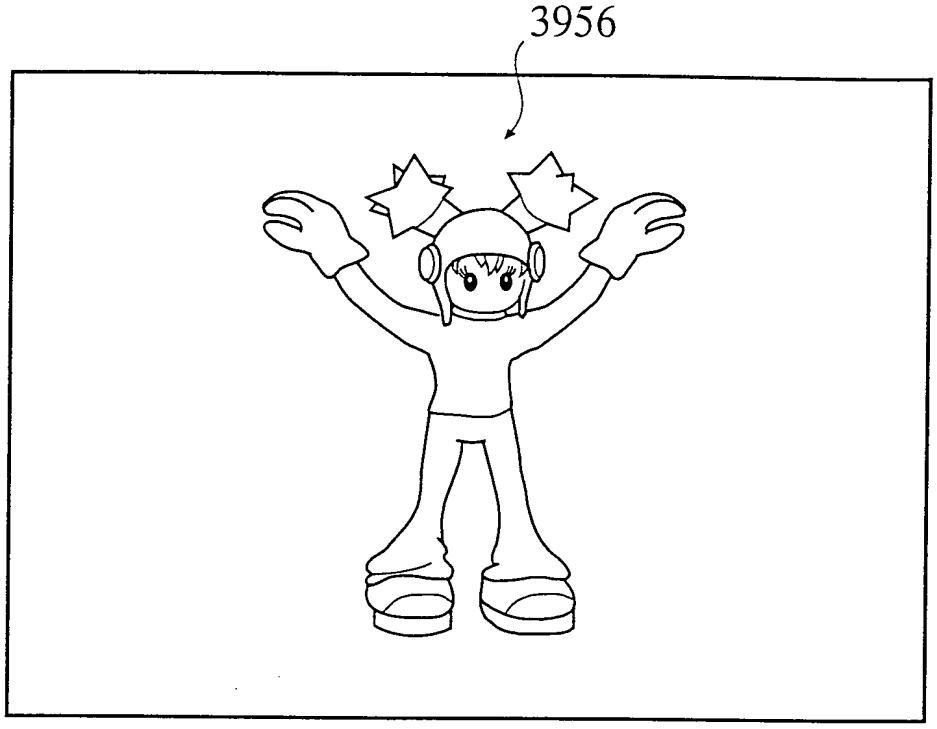


FIG.50

3536

(DIRECTION α, MAGNITUDE β, SPEED γ)

	DECISION REFERENCE DATA			
	t1	t2	t3	...
DANCE 1	(α11, β11, γ11)	(α12, β12, γ12)	(α13, β13, γ13)	...
DANCE 2	(α11', β11', γ11')	(α12', β12', γ12')	(α13', β13', γ13')	...

FIG.51

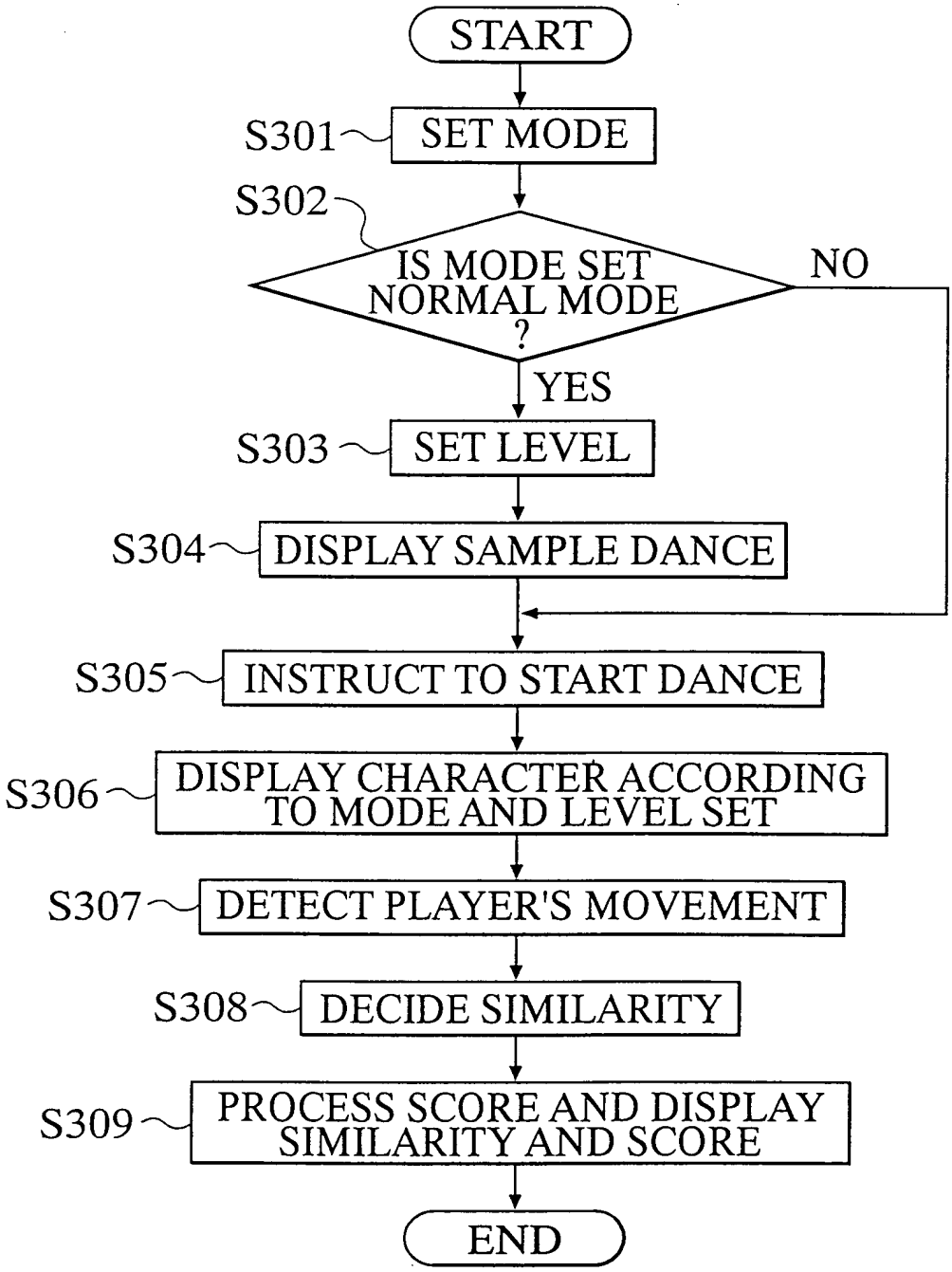

START
S301
SET MODE
S302
IS MODE SET NORMAL MODE ?
NO
YES
S303
SET LEVEL
S304
DISPLAY SAMPLE DANCE
S305
INSTRUCT TO START DANCE
S306
DISPLAY CHARACTER ACCORDING TO MODE AND LEVEL SET
S307
DETECT PLAYER'S MOVEMENT
S308
DECIDE SIMILARITY
S309
PROCESS SCORE AND DISPLAY SIMILARITY AND SCORE
END

FIG.52

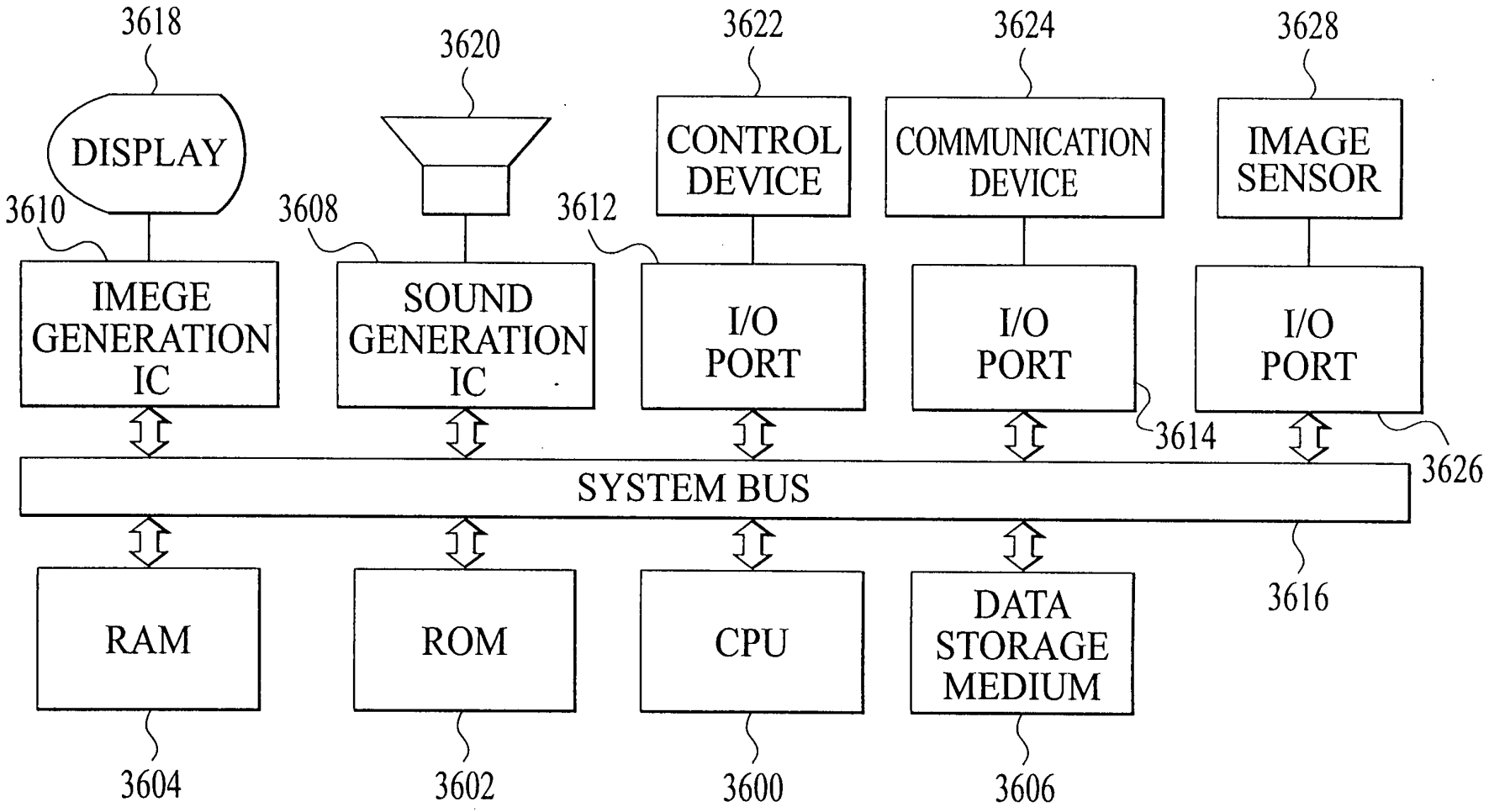
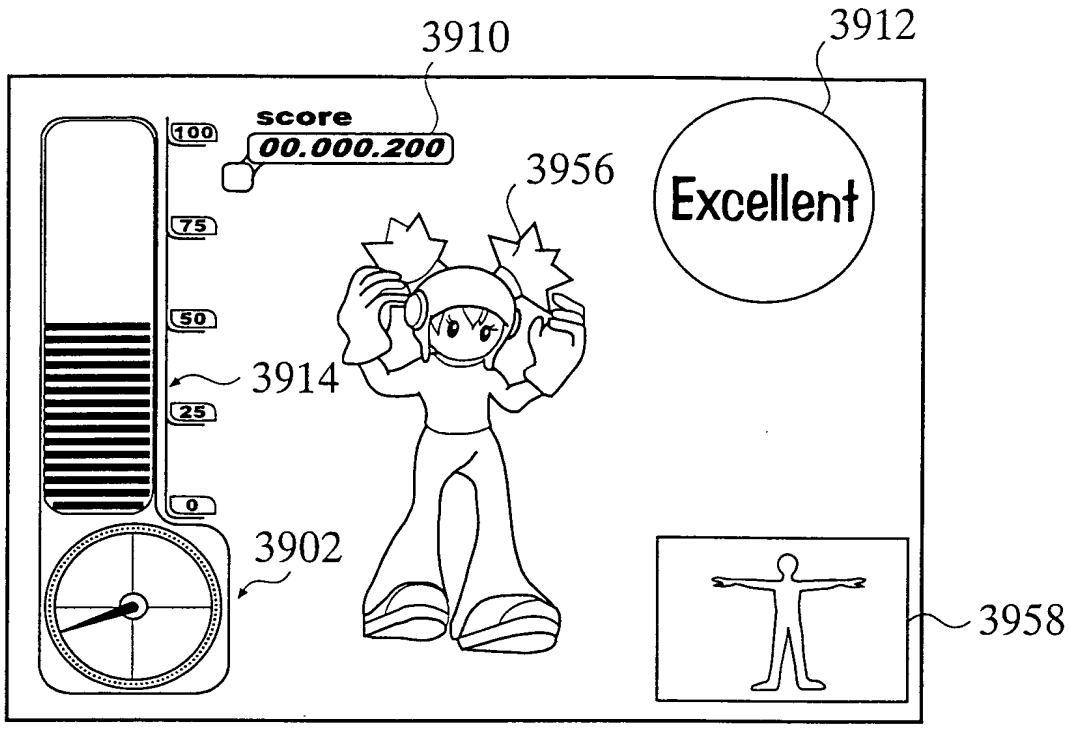

3618
DISPLAY
3620
3622
CONTROL DEVICE
3624
COMMUNICATION DEVICE
3628
IMAGE SENSOR
3610
3608
3612
IMEGE GENERATION IC
SOUND GENERATION IC
I/O PORT
I/O PORT
I/O PORT
3614
3626
SYSTEM BUS
3616
RAM
ROM
CPU
DATA STORAGE MEDIUM
3604
3602
3600
3606

FIG.53


3910
3912
score
00.000.200
100
75
50
25
0
3956
Excellent
3914
3902
3958